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Reported is the design, development, and evaluation of a one-semester course on the principles of economics for twelfth grade students. The course is intended to develop students' capacity for economic reasoning through economic theory and empirical research. To do this, teaching materials and innovative techniques for teacher training were developed. Course materials developed include text, correlated readings, programed instruction sequences, workbook exercises, transparencies, filmstrips and films, and an instructional guide. Several lesson summaries and the results of the evaluation are included in the report. (GR)

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FINAL REPORT
Project H-153
ECON 12
Contract No. OE-5-10-068

May 1968

TO DESIGN AND EVALUATE A 12th GRADE COURSE IN THE PRINCIPLES OF ECONOMICS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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"TO DESIGN AND EVALUATE A 12TH GRADE COURSE IN THE PRINCIPLES OF ECONOMICS"

Project H-153

Contract No. OE-5-10-068

SUZANNE E. WIGGINS
JOHN G. SPERLING

MAY 1968

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San Jose State College

San Jose, California

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CHAPTER I
INTRODUCTION

THE PROBLEM

In 1964, the original proposal for the ECON 12 Project stated the problem as follows:

> "There is a concurrence among educators, professional economists, the government, and the journals of popular opinion about the need to develop a high school economics course. We summarize below the most authoritative analyses of the problems in teaching economics in the schools and the recent programs initiated to improve the content and organization of 12th grade economics courses."
>
> "A session of the 1960 meeting of the American Economics Association was devoted to economic education. The papers and the discussions dealt with three main problems: the kind of economics being taught in the schools, the parts of economics which should be taught, and the role which professional economists should play in high school economics education. The participants agreed that high school economics courses were quite unsatisfactory because they stressed institutional description with little attempt to relate the institutions to the general functioning of our modified market economy. The suggested solution was to teach a theoretically oriented course and to persuade professional economists to devote the necessary time, energy, and talents to developing the course. The prospects of arousing the profession to the task were judged as remote. Professor George L. Bach commented, 'The attitude of the economics profession towards economics in the high schools has generally been one of disdain and disinterest.'"[1]
>
> "In May, 1960, the Committee on Economic Development agreed to finance and publish a study of economic education and invited the Economic Association to appoint a National Task Force to carry out the study. The Task Force Report, Economic Education in the Schools, September, 1961, is the authoritative analysis of the current

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[1] Bach, G.L., "Economics in the High Schools: The Responsibility of the Profession." Proceedings, American Economic Review. Vol. LI, No. 2. May, 1961, p. 580.

status of economic education in the schools, the need for additional economics content in high school social studies, and the minimum information needed to combat economic illiteracy in our population."

"The report lists the following justifications in its argument for the need of improved economic education in the high schools:

1. The growth in complexity of economic issues demands better economic understanding. (p. 7)

2. The need to understand the role which government agencies play in determining domestic and international economic policies. 'In the final analysis, the effectiveness of government depends on the capacity and understanding of the people...If they are to exercise their great political power responsibly and effectively, more of our people must know more about our economy and must learn to think about economic issues objectively and rationally.' (p. 8)

3. Most of the American people have little training in economics. Only about 5% of the high school students take an economics course. Half of the students study "Problems in American Democracy" which devotes considerable time to the subject, but is not based on a theoretical treatment. (p. 8)

4. The economics, whether taught in economics courses or problems courses, is 'generally descriptive and all too often dry and sterile.' There is little attention given to economic theory or analytic thinking. (p. 9)

5. The teaching materials are inadequate. 'The treatment in textbooks is mainly descriptive; economic analysis is almost entirely absent; the reasoning often loose and superficial; value judgements of the authors, generally unidentified as such, abound.' (p. 9)

6. Most teachers are unprepared to teach the subject. (p. 10)

7. There is the problem of public attitudes. Although there has been a growth of interest in economic education, this concern is not always disinterested. 'Unfortunately, it is necessary to recognize that many individuals and groups see economics in the schools as a device for stressing their own private views.' Such attitudes make it difficult for teachers to deal with the necessarily controversial issues which arise in the study of economics. (p. 11)

"Among the recommended solutions to these problems were the following:

1. The introduction of a separate high school course in economics.

2. The development of the students' capacity for economic reasoning through the use of economic theory and empirical research.

3. The introduction of controversial issues as an integral part of the course.

4. The development of more effective teaching materials. (pp. 65-77)

5. The improvement of techniques for teacher training.

6. The inclusion in the course of a recommended minimum body of content as specified in the report. (pp. 17, 42, 43, 54, 61)

"In February, 1962, the Materials Evaluation Committee of the Committee on Economic Development made public a brief evaluation of economic materials for high schools. This was followed in October, 1963, by a comprehensive report. It recommended 97 items out of some 7000 which had been examined. The selection is excellent but the proper use of these materials depends upon the prior existence of a well organized course in economics.

"In March, 1963, the American Economics Association published a supplement to the American Economic Review, "Economics in the schools," A report of a special Textbook Study Committee. This committee established criteria of theoretical adequacy, balanced coverage of the subject matter of economics, and scholarly objectivity in handling controversial subjects. "None of the books examined measured up to these criteria...." The books examined were found to have certain strengths but the committee concluded that its review was disturbing because, 1) there was a clear and pressing need for a voting public that has a deeper grasp of economics than what was offered in these books; 2) though no single format is necessarily ideal, the subcommittee was agreed that some factual information and much of the space devoted to individual problems should be eliminated in favor of simple analytical models of pricing, resource allocation, and levels of employment and income; 3) discussions of major problems could utilize descriptive material and analysis as a means of demonstrating economic reasoning. (p. 8)

"Since the publication of the Task Force Report there has been an increased interest in introducing economics courses into the high school curriculum and in improving those already in existence. In 1964 the Joint Council on Economic Education completed a survey of the 130 largest school systems. With 96 of the 130 systems reporting, only seven systems reported no separate courses in economics at the secondary level. Twenty-five school systems required secondary students to take an economics course; the remaining systems offered elective courses in economics. Seventy-four of the systems have revised their curricula within the past three years. "Request for assistance centered on the need for suitable text-books and supplementary materials along with consultative services." "One of the challenges now facing councils is the task of upgrading the quality of economics courses and the economics units integrated with other courses. Returns so far indicate that large school systems in our Nation are convinced of the importance of economic education.[1]" [2]

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[1] Curriculum Directors' Newsletter, Fall, 1963, Joint Council on Economic Education, p. 3.

[2] Proposal for U.S. Office of Education Project H-153, "Development and Evaluation of a Twelfth Grade Course in the Principals of Economics" p. 2-4. Transmitted Feb. 28, 1964, San Jose State College, San Jose, California.

New studies written since the original proposal add support to these conclusions; in fact, these studies show an increased awareness by teachers and administrators of the importance of twelfth-grade economics and of the problems involved in providing an effective course.

In the spring of 1965, the National Association of Secondary School Principals completed a survey on the teaching of economics in U.S. high schools. All public and private high schools enrolling 300 or more students were polled, and 50.9 percent of the 12,331 schools responded. The survey showed an increase in the percentage of high school students enrolled in a separate course in economics from 4.7 percent reported in an earlier study to 6.1 percent. Of schools responding, 69.8 percent reported offering a separate course in economics; 70.4 percent of these courses are electives. In addition to the increase in economics course offerings, many schools indicated plans to introduce courses in the near future.[1]

> "...Hundreds of the returns remarked on plans and programs currently being or about to be initiated. Furthermore, the number of those stating the belief that economics could not or should not be taught below the college level could be counted on the finger of two hands.
>
> "The findings indicate that the trend is toward a deliberate design which will include some economic materials and concepts appropriately throughout the curriculum from Kindergarten through the senior high school. As such a program becomes operative in more and more school systems, the quality and depth of economic reasoning and understanding to be achieved by an economics course in the twelfth grade will mean that an increasing number of our citizens will make economic choices and decisions with more competence and wisdom."[2]

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[1] Galen Jones, "The Current Status of Economic Teaching in the High Schools of the United States," Bulletin of the National Association of Secondary School Principals, #304, Nov., 1965, pp. 3-27.

[2] Ibid., p. 11.

According to respondents' statements lack of teacher training seemed to be a major constraint on effective economics education. Although an encouragingly high percentage of teachers teaching separate courses in economics had a minor or major in economics, still, roughly 50 percent of these teachers had completed only two college economics courses, or less. Roughly 80 percent of teachers of other courses which include some economics had completed two college economics courses, or less.

> "The most frequently mentioned problem faced by the high schools in carrying out their hopes and plans for economic education is that of finding teachers who like the subject and can make it interesting. 'Our main need is a qualified teacher' is the theme song of the many who commented on this problem."[1]

A recent study by Bach and Saunders corroborates these findings about teacher training in economics and almost identical findings were reported for California on a recent survey carried out by the California State Department of Education where schools reported they would teach more economics if there were qualified personnel.[2]

The principal investigators reviewed most of the courses and course outlines available to them at the beginning of the project (1963). The courses and outlines showed the influence of the Task Force Report in the way in which the content was organized, but there was little effort to organize the content appropriately for the high schools; nor was there much explanation of how the content could effectively be taught.

Since 1963 there has been impressive work in economics education, especially that carried on by Prof. Lawrence Senesh of Purdue University, and Prof. Meno Lovenstein of Ohio University.[3]

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[1] ibid.

[2] G.L. Bach & Phillip Saunders, "Economic Education: Aspirations & Achievements," American Economic Review, Vol. LV, #3, June, 1965, Table 2, p. 340.

[3] Lawrence Senesh, Our Working World, An Elementary Grades Social Studies Curriculum. Grade 1: Families at Work (1964); Grade 2: Neighbors at Work (1965); Grade 3: Cities at Work (1967). Science Research Associates, Chicago, Ill. Meno Lovenstein (et. al.), Development of Economics Curricular Materials for Secondary Schools. The Ohio State University Research Foundation, Columbus, Ohio, 1966.

but a distressingly large number of course outlines and syllabi are published each year which have no more analytical or pedagogical sophistication than those of five years ago.

In our view, the problems of 1963 remain much the same today. America's long traditions of private enterprise, democratic politics and political-economic reform have made economic policy a public affair and a source of heated political debate. This public involvement in economic policy making has led private business and labor organizations to create public relations and educational bureaus to take their case to the people. In addition to education activities and dissemination of literature these private interest groups attempt to influence the formation of curriculum policy and the selection of text books. Often schools respond to the climate created by these contending groups by avoiding controversial topics. In so doing, they also avoid the kind of economics education required to meet our national needs.

ECON 12 strategy is based on the assumption that the best way to attack these political and social problems is through sound pedagogy. The job of economics education is to teach how rational and scientific thinking can allow the average person to deal with the personal and public economic problems which he faces.

OBJECTIVES

The original proposal stated the following project objectives:

"The primary objectives of this project are to develop and evaluate a one-semester 12th grade economics course suitable for students at all levels of achievement and scholastic abilities which can be taught by teachers with a minimum training in economics. This course will be designed to implement the National Task Force of 1961, Economic Education in the Schools, which called for a high school course to develop the student's capacity for economic reasoning through the use of economic analysis and empirical research. Accomplishing this objective will require--

1. Determining the theoretical concepts and information which should be contained in the basic course and the sequential organization of this content.

2. Discovering and developing a set of pedagogical techniques for teaching the desired skills and information and for developing the desired attitudes about economics.

3. Developing the necessary materials needed for classroom use and as resource material for the teacher.

4. Investigating the problem of training teachers if the course materials themselves provide insufficient guides for minimally trained teachers.

5. Developing a series of tests to evaluate the effectiveness of the course in satisfying the course objectives.

"The intended final product of this project will be a course consisting of integrated teaching materials, together with detailed instructions on how the investigators believe the materials can be used most effectively. The materials will include--

1. A text which presents the basic course content.

2. A teacher's manual with lesson plans, student exercises, and a bibliography of source materials.

3. Programmed booklets covering difficult portions of the text and expanding the exposition of the text where this is effective.

4. An economic fact book containing statistical information and institutional descriptions of the major economic systems--to be used for class reference and individual projects.

5. Audio-visual aids, e.g., charts, graphs, overhead projectorals.

6. In addition to the development of these materials, it is hoped that the project work will generate ideas on the use of films, games and mechanical devices to teach theoretical concepts or to simulate models of a market or the national income system."[1]

RESULTS

In the three years since the start of the project, the five objectives were very largely achieved. The major alteration in the project objectives was to enlarge them: 1) to investigate the nature of economics and to articulate a structure of the discipline which can be used as a basis for solving many of the pedagogical problems, 2) to delineate a set of generic teaching strategies, and 3) to work on a model for curriculum development which can be applied to other fields of study.

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[1] Proposal, Project H-153, op.cit., p. 1.

The intended final product remained almost without change except in the way the components were arranged:

1. The text gives the basic presentation of the content, as an introduction and/or a summary.

2. The teacher's guide is now the manual for the course and is, for the teacher, the primary guide to activity.

3. Programmed booklets have been incorporated into a student workbook which also includes other student learning exercises, both for individual and group work.

4. Instead of the economic fact book, there are readings correlated with each lesson and a statistical appendix to the text.

5. Workbook exercises, the programmed instruction sequences and learning experiences (case studies and discussions) built around the readings provide the major primary learning for the students. These exercises also include specifications for classroom discussions, case studies and other extra-class learning activities.

6. Audio-visual aids now consist of three films, three film strips and transparencies for several lessons.

OTHER SOURCES OF SUPPORT

From the outset, the ECON 12 Project received financial backing and other forms of assistacne from the Joint Council on Economic Education, the Northern California Council on Economic Education, and the Contra Costa County (California) Department of Education. This cooperation was made possible through a three-year Developmental Economics Education Program grant from the Joint Council and Northern California Council to the Contra Costa County Department of Education. Because of this coordination of effort, and through the added financing provided, the ECON 12 course was developed and tried out in fifteen of Contra Costa County's twenty-two high schools.

A GUIDE TO READING THIS REPORT

This report summarizes our work and our current evaluation of our accomplishments. Chapter 2 describes the procedures and research methods followed during the project. In Chapter 3 we chronicle the major decisions and activities of the project by describing the work in course design; course trial use, evaluation and revision; and, finally, training teachers who participated in various phases of the project. Chapter four describes the important characteristics of the ECON 12 course. In the final chapter we state and assess the major project accomplishments and problems; we relate this work to curriculum development in economics and elsewhere; we suggest the areas of continuing research and development needed to complete and implement the work started here.

Because the work reported here related to both educational and economics theory and practice, it is necessary to use the language of both disciplines. To avoid possible misunderstanding or ambiguity of meaning in describing the pedagogical aspects of this project we have tried to standardize definitions by using the language and definitions introduced in the learning-thinking model developed recently by J. Richard Suchman.[1] This model provides a frame of reference for discussing learning and conceptual needs of education. An abstract of the model is presented in the following pages.

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[1] The model is presented in a series of Articles in The Instructor, August-September, 1966 to June, 1967.

ABSTRACT OF SUCHMAN'S MODEL TO DESCRIBE THE THINKING-LEARNING PROCESS

The purpose of Suchman's model is to provide a language which permits the educator to describe not only observable student and teacher behavior, but also the thinking process the child goes through when thinking-learning. It is a model "of the functions inherent in the thinking-learning process." It identifies and describes the functions and their relation to each other: perception, retention of learning, motivation, action, and the integrating-controlling function.

Suchman distinguishes six teaching-learning paradigms
1. Rote learning
2. Didactics-expository reading
3. Diagnostic reading
4. Student projects
5. Inquiry
6. Play
7. Student-teacher dialog

Each of these kinds of teaching can be described with this model. As a consequence, it is possible to see the cognitive differences between the kinds of learning situations.

This model uses systems terminology and depicts teaching-learning as a cybernetic system. It is based on two assumptions: The pursuit of meaning is the principle activity of the learner when threat is removed and defensive behavior is not necessary; and meaning results from the interaction between the encounters the individual has with the outside world and the ways he organizes these encounters.

An encounter is a point of contact in space and time between an individual and his environment. Life is a succession of encounters. Encounters can be low intensity, time spent alone in a dark room, or high intensity, a walk in the park with many senses involved. Encounters themselves do not generate meaning within the person. The chief expedient for the extraction of meaning is the organizer.

An organizer is a condition of mind (data, inferences, systems, etc.) that permits the individual to react to encounters in selected ways, e.g., reflexively, conventionally, creatively. "An organizer is available because of what has happened in the past.

It is a pattern which guides the selection, grouping, and ordering of encounters."[1] Watching a session of the U.S. Congress is, for most of us, meaningful because we have encountered that institution in the newspaper, and government courses, etc. We have organizers stored for use.

Meaning is the result of interaction between encounters and organizers.

ENCOUNTER ⟶ ORGANIZER ⟶ MEANING

Suchman's learning model enables us to analyze the learning (meaning generation) process. The model shows the various thinking functions in the form of a cybernetic system. These functions are:

1. Intake (perception)
2. Storage (retention and recall)
3. Control (integration)
4. Motivation
5. Action

Figure I below is a diagram of the model. It shows a circular flow of thinking activity from the encounter to the individual, and back to the encounter.

1. The encounter permits perception (intake)
2. Control regulates intake (perception) by determining which organizers will be recalled and used to permit the intake of new data.
3. Control also determines what new intake will be stored.
4. Control affects and is affected by motivation.
5. Control determines what action the individual will take.
6. The action completes the cycle. The person either acts to alter the intake, or to alter the environment to provide new encounters.

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[1] *Op.cit.*, Aug-Sept. 1966, p. 92.

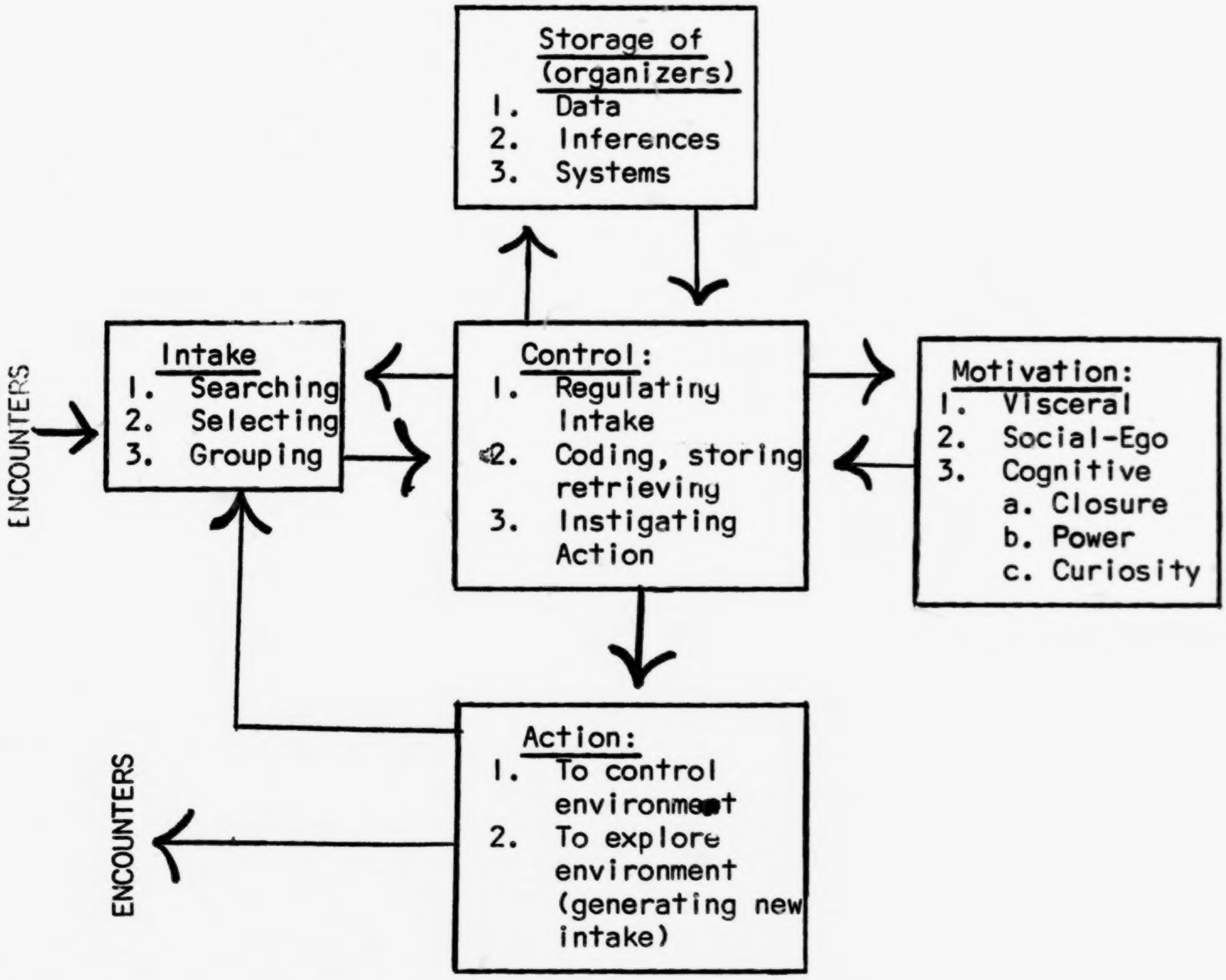
Storage of
(organizers)
1. Data
2. Inferences
3. Systems
Intake
1. Searching
2. Selecting
3. Grouping
Control:
1. Regulating Intake
2. Coding, storing retrieving
3. Instigating Action
Motivation:
1. Visceral
2. Social-Ego
3. Cognitive
a. Closure
b. Power
c. Curiosity
Action:
1. To control environment
2. To explore environment (generating new intake)
ENCOUNTERS
ENCOUNTERS

FIGURE 1: THE SUCHMAN LEARNING-THINKING MODEL

In order better to understand the use of the model it is necessary to present Suchman's discussion of motivation and how motivation in the student is related to the goals of education[1]

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[1] *Op.cit.*, December, 1966, pp. 23, 125.

MOTIVATION

Suchman divides motivation into three levels: 1) visceral, 2) social-ego, and 3) cognitive. The visceral level is determined by survival needs, hunger, thirst, temperature maintenance, and physical safety, etc. Viscerally motivated responses tend to be reflexive, rigid, and repetitive.

Social-ego motivation is created by the student's desire for acceptance and status. When so motivated, students perform in order to show what they know, thereby hoping to gain approval.

There are three kinds of cognitive motivation:

1. Closure - This is a desire to avoid open-endedness by having an answer, e.g., that new encounters produce new meanings that offer a satisfactory explanation of the new encounter.

2. Curiosity - Enjoyment in the pursuit of new meanings, pleasure in open-endedness.

3. Power - The desire to control the environment and to predict new events.

Learning is best facilitated in a classroom atmosphere which minimizes visceral and social-ego motivation and maximizes cognitive motivation. "If the motivation system demands successful output as a defense against threats to survival or social-ego, there is no freedom for action to generate new encounters in exploring, pursuing new meanings, or understanding for its own sake."[1]

GOALS OF EDUCATION[2]

Suchman distinguishes between three kinds of educational goals--the old traditional goals, progressive education, and the goals we can expect in the future.

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[1] Op.cit., December, 1966, p. 125.

[2] Ob.cit., January, 1967, pp. 23, 146; February, 1967, pp. 33, 69.

Traditionally, education shapes "the child to fit the demands of society." In stable cultures, education trains the individual to fulfill his expected role. To achieve this, education is used to develop the appropriate organizers. "Most important are the inferences: those theories, beliefs, and conclusions that everyone is supposed to have." The objective is "to build into the learner a fixed repetory of *action* patterns." Pupils did not generate their own inferences from data. "In almost all the disciplines, scholars created conclusions which children internalized as 'true knowledge' and learned to apply appropriately." In most cases *social-ego* motivation was used.

Progressive education was a strong reaction against traditional education. "The emphasis was on the individual and the kind of growth that could take place in the free, more permissive environment." Students were given a wide range of opportunities to generate their own organizers and thus create meaning for themselves." It was expected that the desire to operate this way would be so great that motivation would take care of itself.

"The idea of progressive education was beautiful, but proved impractical. Few children could handle that much autonomy and many powerful organizers never became part of the childs' thinking. Guidance of some kind was needed and, in the guise of assistance, students were directed in ways that experts considered best." In short, the idea of individual expansion and the developing autonomy of the control function suffered a setback when progressive education disappeared."

GOALS FOR THE FUTURE

The answer of what is needed, according to Suchman, probably lies somewhere between the extremes of the traditional and the progressive curriculum." It should be possible to help children acquire new meaning without forcing them to give up their autonomy."

"It is essential that each teacher become a kind of theorist about the teaching-learning processes and the working of each individual pupil. This means that the teacher must become more of a diagnostician, more of a creator of conditions around the learner, rather than a programmer or director of specific learnings."

It would seem then that the new curriculum should, 1) provide a rich environment which maximizes encounters, 2) provide the organizers needed to generate meanings from the encounters, but 3) maintain free environment so that students can generate encounters for themselves and organize these encounters to satisfy their own desire for meaning.

ANALYZING TEACHING PARADIGMS

The model, as it is elaborated to include motivation and to specify the functions of intake, control, storage and action, can be used to describe and analyze different kinds of teaching and the relation of these methods to the goals of education.

If one wished to describe the dynamics of didactic teaching designed to achieve social adjustment it would be as follows:

1. Meanings given
2. Organizer given
3. Encounters and organizers (maybe)
4. Social-ego motivation (intake-storage and retrieval)
5. The ultimate purpose of didactics is to shape the knowledge structure and behavior of the learning

On the other extreme, discovery learning can be described:

1. The environment is structured to generate a particular encounter.
2. Students produce their own organizers and generate their own meanings.
3. Teachers and materials provide organizers which students can select for use or teachers may introduce them on the basis of their diagnosis of student need.
4. Motivation is cognitive (primarily curiosity) and cognitive desires and satisfaction form the feedback loop.
5. Action follows from the student's desire for and freedom to generate new encounters by altering the environment or by reordering a previous encounter.
6. The ultimate purpose of inquiry is to produce an autonomous inquirer, i.e., one who has the motivation and self-confidence to learn but also one who has enough of the powerful organizers to be successful in generating new meanings and thus to obtain sufficient cognitive satisfaction to be motivated by desire for closure, excitement or meaning.

Play, as a learning activity, can also be described cognitively, and justified as something the teacher should encourage and protect. Play can be both physical and intellectual and here we are interested in the sort of intellectual play which occurs in free discussion or free laboratory activity.

1. The control function is loosened in play because play has no goal other than enjoyment, and no particular product is expected.
2. Encounters produce unexpected intakes because the control function is reduced.
3. The playing learner is free to apply any set of organizers to the intakes. Selection of organizers can be on whim, intuition, or just to see what happens. Play, therefore, can often be cognitively creative and productive of insights which can be exploited under more formal inquiry conditions.
4. In play, curiosity and excitement are the primary motivations and receive powerful reinforcement when new encounters and meanings emerge from the play activity.
5. Action to explore the environment to generate new intakes is maximized by play activity and thus the chances for new meanings to emerge is quite high.

CONCLUSIONS

This model allows inquiry and play to be analyzed and justified. A fuller use of the model also makes possible a description of teaching strategies that are suitable to any given teaching paradigm. A well designed curriculum can make use of many kinds of teaching-learning strategies. Each kind can be valuable if it serves a function in the learning process.

Our educational tradition has relied on teaching-learning paradigms that are designed to shape the learner in specific and controlled ways. This is why rote learning and didactics have predominated. There has been some shift toward diagnostic teaching and projects where more flexible approaches allow for individual differences. But fixed end products and high teacher control still remain. Play and inquiry, which stress learner goals and autonomy are not yet widely accepted. Teachers are still afraid to allow students to strongly influence the direction and patterning of their own learning.

In the chapters which follow, we will trace our decisions about how far to stray from traditional student-shaping learning strategies. It became clear to us that any short (18 week) course in the economics discipline in which students learn to use the traditional discipline methods and conventions is, by definition, an attempt to shape students' thinking-learning patterns. It was necessary for us to justify this approach and to explore the possibilities of using alternatives which would provide a freer environment for student inquiry.

CHAPTER 2
METHOD

CHOICE OF METHOD

The proposal of Project H-153, transmitted 28 February 1964, detailed the investigators' work in economics education to that time: this included a first draft manuscript of most of a 12th grade economics principles text and its trial use in one high school. This work convinced us of the inadequacy of relying on a text as the primary organizing and pedagogical guide to a course. Rather, success in teaching high school economics seemed to require the solution of numerous, interrelated problems in curriculum design and teacher preparation. The project was organized to try to solve them all. What, exactly, should be taught? What, in fact, can be learned? What is an effective method of organizing content and learning? What teaching paradigms are useful or essential for achieving course objectives? Which materials work satisfactorily for each objective? How can teachers be trained to use these materials and strategies?

Action Research-Systems Design

Because the objectives were too amorphous to permit us to specify any elaborate research design, we chose to work within the pragmatic mode of action research which would permit us to develop more specific objectives as we gained insights from research or analysis. Systems design procedures were beginning to be applied to curriculum development, and we chose to use the metaphor of systems design to describe the research and development plan because it suggested our intent--a comprehensive, objective and flexible approach to investigating a complex set of interrelated problems. As a natural consequence of this decision, it was also decided to design ECON 12 as a teaching system. During the first year of the project we became convinced of the usefulness of the approach, and we decided to keep a record of working procedures in hopes that general systems and curriculum design models could be specified by the end of the project.

As used in this project, a teaching system is conceived as including all the people and materials involved in teaching and learning the particular subject, i.e., the teachers, students, written and audio-visual materials. All of these human and non-human components interact to perform the system function: to allow students to meet the course learning performance criteria.

System design procedures require that student performance levels be specified; that achievement of these performance levels be the criteria used in judging the success of trial versions and ultimately the effectiveness of the system. In addition, the method requires careful specification of the roles and functions of personnel and materials, early and recurrent testing, and other feedback procedures for redefining objectives and changing the materials.

This over-all approach is an extension of the procedures of programmed instruction to a design problem involving several kinds of media and learning strategies. The deliberate use of programmed instruction design techniques was an attempt to assure that the course would emphasize student achievement as the goal of instruction.

A teaching system, of necessity, differs from most of the systems found in industry and government in that control over personnel is not always possible, a fact which will make the system less able to function effectively. The system cannot force instructors to follow orders, and controls exercised over a captive audience of students are necessarily lax. Consequently, the main control over the functioning of the system devolves upon the materials. In turn, the effectiveness of the control function of the materials depends on the clarity of the directives contained therein, and on the success of the materials in inducing a cooperative attitude on the part of teachers and students. A teaching system of this sort depends upon self-motivation rather than on external authority.

A possible ancillary control mechanism, but one which also depends upon self-motivation, is a teacher orientation-training program. If such programs are costly they cannot train more than a fraction of those teachers who would use the system. Therefore, they cannot become important for control unless it is possible to design an effective, inexpensive teacher-training system.

It might well be asked whether there can be enough control exercised in ECON 12 or in any teaching system using a teacher-executive, to consider it a system, and, indeed, whether systems design procedures are applicable to curriculum design. These questions cannot be answered finally until ECON 12 and other similar systems have a sufficiently widespread use to determine whether or not the course objectives at criteria level are achieved by a significant percentage of students. However, the value of the systems concept does not rest solely on final results. Systems design also has a rhetorical value, for it represents an ideal which sets high standardsof achievement for curriculum designers, for teachers, and for students. To the extent that ECON 12 tends to motivate students to the achievement of course objectives and permits them to so perform, it induces both students and teachers to perform their functions. It was the designers' hope that the systems could provide this motivation and success, and therefore a higher level of teacher and student performance than would exist in a more traditional curriculum.

COURSE AND MATERIALS PREPARATION

Course and materials preparation began with original statements of a course objectives, rationale and content. The course was then tentatively broken down into teaching units, and into lessons within units. Throughout the project, the content and sequencing of the units and the lessons within the units have shifted constantly. By the fall of 1965, the following procedure was being used for unit and lesson design.

Unit Design

The first step in designing a unit of the course and its component lessons was to state as succinctly as possible the general purpose of the unit--the knowledge, skills and attitude objectives of the unit. These objectives were then stated behaviorally to spell out levels of achievement in terms of content mastery, ability to conceptualize, and critical thinking levels. First, the terminal unit behaviors were stated; from these the intermediate objectives were derived; then sequential learning objectives were specified within lessons as the relationships between skills and information were spelled out. Lessons were sequenced so that mastery of prerequisite learning permitted students to progress from relatively simple knowledge and skills to higher levels of understanding, learning, and to more complex and more abstract thinking.

Lesson Design Procedures

Figure I below is a graphic presentation of the lesson design procedure used to develop the version of ECON 12 used for the spring, 1966 text. Solid lines and arrows show the sequence of the developmental activities; broken lines indicate feedback; rectangles outline production stages; ovals outline evaluation steps. The chart shows three separate stages of lesson development. In Stage I the general purpose of the lesson was generated; work began with a statement of purpose and entailed specification of: 1) content outline and, 2) lesson behavioral objectives along with their criteria tests. In Stage II teaching strategies were devised and student materials, audio-visuals were produced. In Stage III, testing and evaluation of materials produced the information feed-back which guided revisions.

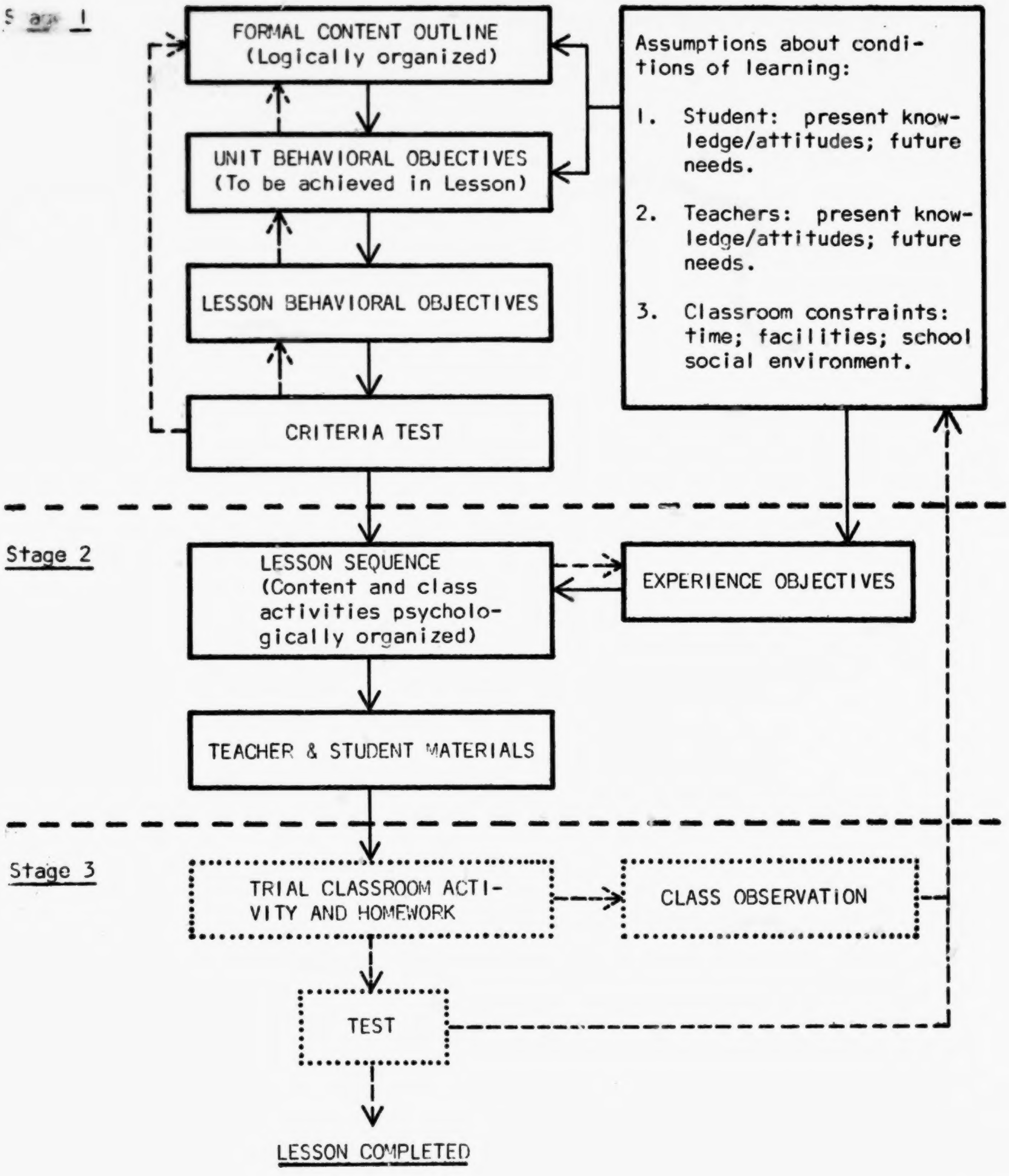

Stage 1
FORMAL CONTENT OUTLINE (Logically organized)
UNIT BEHAVIORAL OBJECTIVES (To be achieved in Lesson)
LESSON BEHAVIORAL OBJECTIVES
CRITERIA TEST
Assumptions about conditions of learning:
1. Student: present knowledge/attitudes; future needs.
2. Teachers: present knowledge/attitudes; future needs.
3. Classroom constraints: time; facilities; school social environment.
Stage 2
LESSON SEQUENCE (Content and class activities psychologically organized)
EXPERIENCE OBJECTIVES
TEACHER & STUDENT MATERIALS
Stage 3
TRIAL CLASSROOM ACTIVITY AND HOMEWORK
CLASS OBSERVATION
TEST
LESSON COMPLETED

FIGURE I FLOW CHART DESCRIPTION OF ECON 12 LESSON DESIGN AND MATERIALS PREPARATION PROCEDURE 1965-1966

Stage I: Conception of Lessons. Lesson design began with the statement of the general purpose of the lesson and assumptions about the conditions of learning. (In the chart above, the alteration of these assumptions and of the purpose of the lesson as the result of feedback is indicated by broken lines which lead back to the rectangle labeled "assumptions about the conditions of learning.") Using the purpose of the lesson as a guide, and within the constraints of the assumptions about learning conditions, the content of the lesson was organized into a tight, logical sequence, and an outline of this content was prepared. This logical organization of content was then altered, if necessary, to take into consideration any known student learning problems, so as to permit effective sequencing of learning.

Unit behavioral objectives were specified, i.e., the observable individual student behavior which a student should achieve which would test the knowledge, skill or attitude objectives of the unit. Lesson behavioral objectives were constructed and sequenced to permit students to learn in steps so as to assure that the student would be able to meet the unit behavioral objectives. These lesson behavioral objectives were the basis for generating the learning experience objectives of the lesson. The lesson and unit criteria tests stated the behavioral objectives in question form to permit measurement of student achievement of each behavioral objective.

Stage II. Lesson Strategy and Materials Design. The entire staff participated in designing learning experiences and the lesson sequence. Group sessions were particularly productive because of the pooling of talent which generated more ideas and made it possible to settle at one time problems relating to curriculum theory, economics principles and sound design. Using these rough outlines the investigators organized the outcomes of these meeting and whenever possible, consulted teachers on the practicability of the lesson sequences. They assigned staff members to create materials to conform to the specific needs of the learning experience.

Stage III. Formative Evaluation. Formative evaluation consisted of staff classroom observations, interviews with teachers and students, objective examinations testing lesson behavioral objectives and a student course evaluation questionnaire.

Staff Requirements

The systems approach required the specialized skills of a team working together to make major design decisions, and working separately to carry them out. This is quite clear from a description of the staff and their functions:

1. The investigators managed the project, and made final decisions on course design and materials specification.

2. Subject matter specialists (the principal investigators, a research assistant and consultants) defined the conceptual and methodological structure of the course; supplied illustrations and problems for learning experiences; helped construct behavioral objectives, criteria tests and learning experience objectives; developed case studies; wrote the bulk of the student and teacher materials.

3. The programmed instruction expert supervised the structuring of the content, its division into teachable increments and the statement of behavioral objectives. He also wrote the short, programmed instruction booklets.

4. Media consultants helped determine the teaching strategies and media for each lesson. They suggested practical solutions to technical problems and provided information on the appropriateness of the assumptions about the conditions of learning.

5. The design consultant and his staff carried out these decisions by designing and executing the recommended audio-visual media.

6. Curriculum theorists aided in shaping course design, recommended effective teaching strategies and recommended teacher-training procedures.

7. A trained teacher supervisor helped devise an evaluation instrument for assessing teacher competence.

8. Experienced teachers were part of the project from the start. They provided information about students and teachers, gave advice on course and lesson objectives, taught the course and made recommendations for revision.

9. A professional writer contributed original essays, edited and wrote film scripts.

10. A test construction consultant advised on development of and critiqued objective examination questions.

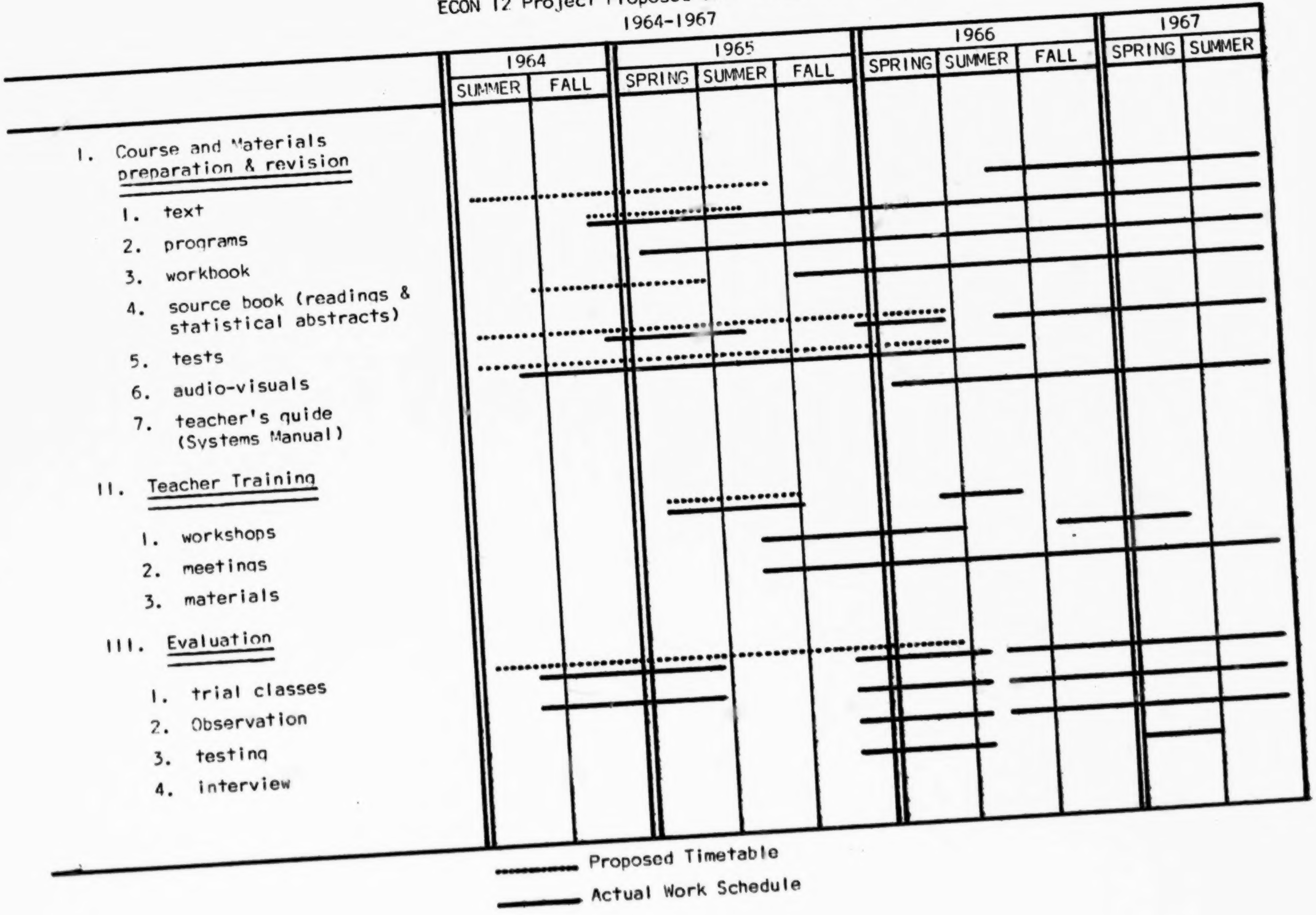
GENERAL OPERATING PROCEDURES AND TIME TABLE

Systems design procedures require procedural flexibility which permits changes in objectives, and therefore in project activities, when indicated by the feedback. This was the case in developing all aspects of the system - objectives, content, materials, teaching strategies, etc.

Table I below compares the original work schedule included in the proposal with the actual timetable. The major deviations from the original plan stand out: 1) no additional work was started on the text until the end of the project; 2) the project had to be extended fifteen months beyond the original deadline; 3) no student workbook or teacher's guide was specifically described in the original proposal; 4) there was much more extensive evaluation emphasizing observation and interviews as well as objective testing; 5) the only schedule 'in line' is the audio-visual timetable, and here work was terminated 'on time' only because of financial limitations.

Table I

ECON 12 Project Proposed and Actual Timetable
1964-1967



The reasons for the differences between the proposed and the actual time table are summarized below.

Course and Materials

1. Text - as originally conceived, the text was the primary learning device which would be supplemented by programmed instruction, audio-visuals, and readings. As we became less enthusiastic about student-shaping instruction and more oriented to discovery learning, it became clear that the function of the text would change to a course summary. Thus, the text could not be written until after the course objectives had been specified.

2. Programs - the extension of time on the programs resulted largely from the fact that they became the primary form of didactic instruction. Test results and teacher reactions permitted us to identify descipline organizers which the teachers could not handle adequately, either through inability or lack of interest, and these were programmed to permit students to get their initial experience with the organizer in a carefully sequenced programmed format.

3. Workbook - In addition to programmed instruction the workbook contains other forms of learning experiences and these changed constantly as a result of feedback from testing, as our understanding of the learning process increased.

4. Source book - here the extension resulted from the fact that the readings and statistical abstract could not be completed until the learning experiences, to be included in the workbook and the teachers guide, had been designed.

5. Tests - tests underwent constant revision as we altered the course behavioral objectives, on the basis of student performance in the try-outs. Furthermore, a prolonged test development phase will be required after the course is in use in order to insure that test items actually test desired student behaviors.

6. Audio-visuals - Development of audio-visuals terminated almost on schedule because of lack of further funds. However, it should be pointed out that, as our work progressed, we altered our ideas about the proper function of audio-visuals and this phase of the project would have undergone radical changes.

7. Teachers guide - because the teachers guide is almost the last thing to be written, the time extension was mandatory.

Teacher Training

As originally conceived, there would have been time for only one teacher training workshop before the completion of the project. However, due to the support of the DEEP project in Contra Costa County and the the grant of supplementary funds from the U.S.O.E., it was possible to continue workshops and meetings through 1967. During the summer of 1967, the National Science Foundation funded an institute for 40 teachers from Santa Clara County, California, to receive training in the use of the ECON 12 materials.

The increased attention given to offering teacher-training programs and to developing teacher-training materials reflects the investigators' conviction that teachers must have confidence in the effectiveness of the course, understand thoroughly its rationale, objectives, and the purpose and function of the materials. Since it will not be possible for the project staff to train all potential teachers of the course before it is introduced into a curriculum, the teacher's guide was planned as a thorough orientation to the scope and intent of the course, and to create confidence and a willingness on the part of teachers to perform their functions in the system.

Evaluation

The first spring trial, in 1965, convinced the investigators of the necessity and importance of the trial-and-revision method, thus the increased emphasis on evaluation and on testing. Continuous feedback from students, teachers, and staff members permitted a growing sensitivity to student and teacher attitudes and interests and to the heterogeneity of these attitudes and interests. Continuous testing and revision permitted a greater degree of refinement, but did take more time. ECON 12 has been through several versions or stages of refinement: the revisions submitted here were developed for the spring '66 trial. Since then, revisions have been financed principally through funds provided to the Contra Costa County DEEP Project by the Joint Council on Economic Education.

CHAPTER 3
PROJECT CHRONOLOGY: COURSE DEVELOPMENT AND EVALUATION

PROJECT ACTIVITIES -- 1964-65

Course Design

The development of course materials began in the fall of 1964. The immediate purpose was to prepare a course which the principal investigators would teach in two Contra Costa County high school classes during the spring semester. One was a college-prep class at Acalanes High School, a school serving an upper-middle class community, and the other was a heterogenous class with a high percentage of terminal students at Clayton Valley High School, a middle to lower middle class school.

This first version of the course was to include six units: an introduction, microeconomics, macroeconomics, comparative systems, economic growth, and international economics. Only the first three units were prepared and taught that spring.

The course began with a week-long discussion based on a three-part slide show. Part I presented cartoons showing man's basic economic needs. Part II presented photographs depicting the level and complexity of U.S. consumption, distribution, production and economic problems. Part III used photographs and statistics on income and wealth to contrast Brazil with the U.S. to suggest their interdependence and the economic basis for political unrest.

The slide show was designed to arouse interest in economics, present a summary of the whole field of economics and introduce students to the complexity of economic problems. Our strategy was to use the slide show as an encounter which would stimulate student discussion, thereby interesting and introducing economics to them, at the same time permitting us to learn about student knowledge and economic reasoning abilities.

The slide show lesson lasted a week. Student reactions were good, but lesson effectiveness was weakened by our failure to identify and relate the lesson to more specific objectives and by the limited skill of the principal investigators in the techniques of inductive teaching. Furthermore, the next lesson did not make use of the ideas introduced in the slide show. Instead, students went directly into the next activity--analysis of four decision-making problems.[1]

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[1] For a description of the problems see Appendix A. They were choices involving: buying a new car, choosing a career, deciding whether or not U.S. firms should be allowed to sell wheat to Russia, and whether or not there should be a moratorium on filling in the San Francisco Bay.

This second part of Unit I was an inquiry into economic problem solving. The problems were to serve two purposes: (1) to interest the students in economics through group analysis of economic decisions common to the average citizen and (2) to allow students to discover the procedure for making rational economic decisions. The problems required five weeks for the students to work out, ending with student derivation of the following set of rules for economic decision making: (1) State objectives which will satisfy the need or want. (2) Recognize the limits that exist in one's ability to satisfy wants and needs. (3) State the alternative solutions. (4) Compare the consequences to the alternative solutions by making alternative cost calculations.

Although much of the problem solving activity seemed rewarding to the students, we finally decided to eliminate this activity. The problems, which were chosen to show the relevance of economics to students' immediate needs, did not prove particularly interesting to them. In addition, inducing a rational economic decision-making procedure outside of the conceptual structure of economics was time consuming and did not really instruct students in economics, so it did not convince them of the power of the discipline. Once stated, the four steps in economic problem solving seemed obvious and did not constitute an organizer of sufficient power for the students to value. We reasoned that, perhaps, once the students learn some basic economics concepts such as scarcity, efficiency, diminishing returns, alternative costs, they then should recognize as useful the decision making process.

In the final three weeks of Unit I students engaged in a class discussion using the problem solving experience and a set of worksheets to learn an economics vocabulary, and to get a first view of the structure of economics. (Parts of these worksheets are reproduced in Appendix A.) The worksheets were given a visual design which, it was hoped, the students would find interesting and which would require them to piece together diverse strands of ideas and put them together into a conceptual structure. Hopefully, the graphic design would invite students to explore the ideas in the worksheets.

Student reactions were varied. Generally, they accepted the task, but our final judgement was that the design was too unique to be generally accepted by teachers and students. Furthermore, the design cost was prohibitive, so a simple design was used in later versions. Because the worksheets were effective organizers of class activity they proved to be a pedagogical success and became the core of the student materials.

In the remaining nine weeks a variety of materials--text, programs, worksheets and readings--presented the price system, pure competition, monopoly, industry organization, national income theory and fiscal policy. The following table summarizes the content and materials of Unit II, market operation in the U.S., and Unit III, national income theory and policy.

Table I
Summary of Topics and Materials for Units II and III
Spring, 1965 -- ECON 12 Try-out

Lesson	Subject	Materials	Days
UNIT II			
1	Adam Smith's free market model	Lecture and worksheet	4
2	Model of pure competition:		
	Market defined	Text	1
	Demand defined	Text	1
3 Test	Line graphs	Worksheet on line graphs,	5
4	Demand elasticity, changes in demand	Text & Worksheet	1
	and supply	Text	2
5	Price determination	Text	1
	Law of supply & demand	Text, overhead transparencies	1
Test			4
6	Model of monopoly	Worksheet on monopoly	3
7	Industrial Organization	Worksheet on market structure in steel, coal mining, and auto mfg; readings on structure, conduct and performance in autos	5
			28
UNIT III			
1	Measuring Economic Aggregates	text, overhead transparencies	3
2	National Income Statistics	Worksheet, text	2
3	National Income Analysis	Program, worksheet	3
4	Fiscal Policy	None	2
Test			2
			12

These units were organized to permit students to learn simple parts of economic theory through didactic instruction which, nevertheless , sought to engage students in active class participation through activities organized in the worksheets. The text used had been written by the principal investigators prior to the beginning of the project. We planned to conclude these units by studying real economic problems (case studies) which allowed students to apply the theory which they had learned.

In Unit II students studied the performance of the automobile industry and the need for government intervention. Because of the time constraint, problems were never devised for Unit III.

Evaluation

This first year of classroom experience gave the principal investigators first-hand experience in high school teaching, and it enabled the staff to learn about high school teaching conditions and about students as individuals and as group members. We were able to start to identify conditions of learning which would place constraints on course design.

We were happy to discover that most students could complete the assignments and participate in the class discussions. They were not always interested in the subject under study, and many members of the Clayton Valley class could not be induced to participate in class activities or to complete homework. Several of these students did not have sufficient reading or writing ability even if they had had the interest. The greatest triumph of the semester was in organizing class discussions on controversial issues. Our strategy was to require students to take and defend positions, with the understanding that all policy positions would be accepted as valid as long as the student could use logical analysis and facts to support his position. As students learned to take us at our word, they began to apply reasoned analysis in their class and homework arguments.

The classroom experience, trying out various teaching strategies, made the principal investigators aware of the difficulty of designing and carrying out good inductive teaching. Students were not always receptive to accepting more responsibilities for learning, and we were not always capable of devising tactics appropriate for the given class of students. These difficulties with "new" methods colored later decisions about the course materials, strategies and teaching-training program.

The spring, 1965 classes were audio-taped and the tapes were transcribed and analyzed. In addition, staff members and county supervisors observed the classes. Students were tested frequently with multiple choice and essay questions and written assignments were carefully critiqued by the staff. Student interest was assessed through a course evaluation questionnaire and class discussions with the students.

After the first year, we moved rapidly to a more consistent and self-conscious use of systems design procedures. These procedures were described in a continuing series of staff position papers, culminating in the ECON 12 progress report of May, 1966; they are summarized here in Chapter 2.

Teacher Training & Involvement

The first ECON 12 workshop was held in August, 1965. Twenty-four teachers attended the three-week session at a junior college in Contra Costa County. The workshop was designed to give teachers an opportunity to study new approaches to instruction, the teaching system basis of ECON 12 course design, and the economic principles pertinent to the course. The teachers also met in workshop sessions to help design lessons. The workshop was divided into morning and afternoon sessions. The morning was devoted to two lectures (on either education or economics) and a discussion session. Afternoons were devoted to either lectures or work sessions on the materials.

The workshop suffered from two major limitations. Because the course materials were not sufficiently developed, lectures could not focus on the curriculum theory and the economic theory specific to ECON 12 and, in consequence, they were sometimes too theoretical to appeal to the teachers who wanted practical aid for their teaching problems. Second, the afternoon work sessions could not make efficient use of the classroom experience of the teachers because the principal investigators were not sufficiently experienced to judge the value of teachers' analyses of classroom behavior or their abilities in designing teaching strategies.

By the end of the workshop, however, several things were clear. Except for a few persons, the teachers could not design learning experiences which were well focused on the knowledge or skill objectives of the course and which experimented with a range of possible appropriate teaching strategies. However, they did have experience with students and were interested in limited experimentation in teaching tactics. It appeared that the teachers' most effective role was that of critics and refiners of existing ideas. In the following year several teachers developed talent in testing the materials in the classroom and specifying, in detail, how learning experiences should be redesigned.

PROJECT ACTIVITIES, 1956-66

Course Design

During the fall of 1965 the work of materials preparation went forward. The three basic units remained essentially the same in purpose--an introduction, a unit on micro-economics, and one on macro-economics--but the problems format in the introduction was abandoned in favor of a sequential development of the conceptual structure of the economics discipline similar to that used in the spring, 1965, introductory worksheets. This structure was an integration of the work of Lionel Robbins and Kenneth Boulding and is described in Chapter 4 below. The optional units were unchanged but, again, work on the first two of the basic units absorbed most of the staff's time and the optional units were developed into outline form only. None of the teachers in the test were able to finish more than the first two units. Consequently, the evaluation was limited to these units.

The course content and materials developed in 1965-66 are described in the outline below.

OUTLINE OF ECON 12 COURSE, SPRING, 1966

Unit I (6 weeks). Unit I introduced the student to basic social relationships studied in economics and the framework of ideas economists use to study these relationships.

Content	Learning Device	Class Days
Lesson I - Scarcity 1. Scarcity, the inequality between wants and goods and services available to satisfy these wants. 2. Economic activity as a chain. 3. Why the scarcity inequality exists and persists. 4. Solutions to scarcity: economic and non-economic.	filmstrip, worksheet, overhead transparency, reading: Tolstoy "How Much Land Is Enough" & E.M. Forster, "Mr. Andrews"	

(continued)

Content	Learning Device	Class Days
Lesson 2 - Specialization and resource productivity 1. Production efficiency. 2. Types of specialized production and how specialization increases productivity. 3. Production functions and the law of diminishing returns. 4. Calculating alternative costs.	program on productivity, film on the historical evolution of specialized production, worksheet, program on comparative advantage	5
Lesson 3 - Exchange and Money 1. Barter & money exchange. 2. The functions of and qualities of money. 3. Market expansion and the evolution of money from commodities to paper claims. 4. Financial institutions and types of credit. 5. The relation between money and credit.	worksheet and class discussion	7
Lesson 4 - "Economic Systems": Economic organization of society 1. Five basic economic activities. 2. Economic institutions. 3. Four basic economic decisions. 4. Three social forces affecting economic organization. 5. Exchange diagrams to describe an economic system.	essay and filmstrip on Tsimshian Indians, inductive learning sequence to find a means of studying & comparing economies (the U.S. & Tsimshian societies); overhead transparencies of exchange diagrams.	6
Lesson 5 - Macro economics and the Circular Flow Model 1. The Circular Flow diagram. 2. Usefulness and limitations of the diagram. 3. The need to study an economy as a total system - macro-economics.	essay on macro-economics, overhead transparencies, film, worksheet	4

(continued)

Content	Learning Device	No. of Class Days
Lesson 6 - Economic Goals and Conflicts, Economic Policy 1. Four basic economic goals. 2. Conflicts of interest over goals. 3. Rational Decision making to resolve conflicts. 4. Applied economics, economic policy making.	readings, worksheet, class discussion	3
Lesson 7 - What is Economics? 1. Definition of economics a) delimiting the content b) methods of economic analysis	program, student essay	2

Unit II (7-9 weeks). This unit described the organization of the U.S. markets and how the American market system allocates scarce resources.

Content	Learning Device	Class Days
Lesson 1 - Why are prices important? What do they do?	class discussion, worksheet problems, readings	2
1. A price system as a cybernetic system, general equilibrium model showing the effect of prices in a two commodity economy.	reading	
Lesson 2 - The use of models in economic analysis 1. Models of abstraction 2. Model construction 3. Types of models: for prediction, explanation, idealization	film, program	2
Lesson 3 - Market Supply and Demand 1. Defining a market 2. Market demand 3. Line graphs and demand curves 4. Market supply	readings, overhead transparancies, worksheet	5

(continued)

Content	Learning Device	Class Days
Lesson 4 - Price Determination and the Laws of Supply and Demand 1. How prices are determined, a model showing market equilibrium. 2. Predicting price change: the law of supply and demand.	readings, overhead transparencies, worksheet	4
Lesson 5 - The Model of Perfect Competition 1. The long-run effect of perfect competition on resource allocation.	readings, overhead transparancies, worksheet	2
Lesson 6 - The Model of Perfect Monopoly 1. The long-run effects of no competition on resource allocation. 2. Comparison of the two models.	readings, overhead transparancies, worksheet	2
Lesson 7 - Imperfectly competitive markets. 1. Classifying real industries according to market structure. 2. The relation between market structure and competitive conduct & performance.	program	2
Lesson 8 - Three Industry Case Studies (Aluminum & Automobile Manufacture, Telephone Services) 1. Industry studies: a. Analysis of industry structure. b. Student predictions about major forms of competition. c. Simulations requiring students to make management decisions under given market conditions. d. Discussion of industry performance.	films, teacher readings, overhead transparancies of data, student data packets on industry structure	10

Content	Learning Device	Class Days
2. Comparison of structure, conduct and performance of the three industries to draw conclusions about the nature of oligopoly markets.		
3. Government control or regulation in the three industries: evaluation of function and effect		

The materials used in the spring 1966 trial are listed in Table 2.[1]

Table 2: List of Materials Produced for Spring 1966 Trial of ECON 12

Type	Subject	Unit	Lesson
Worksheets		I	1-6
		II	3-6, 8
Films:	"Production"	I	2
	"The Circular Flow Model"	I	5
	"Model Man"	II	2
Filmstrips:	"A Starting Place"	I	1
	"Made by Indians"	I	4
Readings:	"Mrs. Andrews" (story), E.M. Forster	I	1
	"How Much Land Is Enough?" Leo Tolstoy		
	Cultures of the North Pacific Coast (excerpts) - ethnographic data by Philip Drucker	I	4
	The Story Telling Stone of the American Indians (2 selections) by Susan Feldmann (ed.): Myths and Tales		
	"Economic Values: Goals and Conflict Resolution"	I	6

(continued)

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[1] The written materials were collected and submitted to the U.S. Office of Education in two separate bound documents: ECON 12 Teachers' Materials and ECON 12 Student Materials (Units I and II).

(continued)

	an essay by ECON 12 authors	I	6
	The Judge's Decision in the 1806 Cordwainers' Case (historical document)	I	6
	The Preamble to the National Labor Relations Act, 1935, (historical document)	I	6
	"The Unions Come Into Their Own," from John Herling, Labor Unions in America (history)	I	6
	The Price System, Chapter I by Robert Dorfman, Prentice Hall, 1964	II	I
	"The Market System," essay by ECON 12 authors from their original text	II	3
	"Automobile Manufacture, A Mass Production Industry," essay by ECON 12 authors	II	8
	"The Organization of the Telephone Industry Today," essay by ECON 12 authors	II	8
	"The Aluminum Industry," essay by ECON 12 authors	II	8
Programs:			
	Productivity	I	2
	The Theory of Comparative Advantage	I	2
	The Law of Diminishing Returns	I	2
	Purchasing Power, Income, & Wealth	I	3
	Definitions of Words with Double Meanings: Saving, Capital, and Investment	I	4
	Systems	I	5
	The Definition of Economics	I	5
	Feedback	II	I
	Models	II	I
Overhead Transparencies:			
	Want-Satisfaction Chain	I	I
	Exchange System for the Tsimshian Indians	I	3
	Circular Flow Diagrams for U.S. and Russia	I	3
	Line Graphs	II	3

(continued)

Price Determination and Price Changes	II	3
Data on the Aluminum Industry	II	4
Data on the Automobile Industry	II	4
Income Distribution	II	4
Teachers' Guide	all lessons	

Teacher Training and Involvement

Although the teachers who participated in the summer, 1965 workshop did not use ECON 12 materials in the fall, 1965 semester, they attended monthly meetings during the fall. At these meetings we reviewed and discussed materials, and teachers helped formulate teaching strategies. These monthly meetings continued during the spring, 1966 trial when most of the workshop participants were teaching the course. Discussion focused on practical problems. The investigators explained new materials, and teachers expressed their reactions to the materials they had already used--what they liked about the lessons, what worked well, what did not work well. Sometimes the teachers worked together in small groups, discussing materials and critiquing the course. These monthly meetings were supported by the Contra Costa County DEEP Project.

During the 1966-67 Academic Year, JCEE and Contra Costa County continued to support monthly teacher meetings and, in addition, sponsored two weekend retreats for the staff and teachers. The first, held in September, 1966, was a summing up of the first year's experiences and a discussion of the major changes in the course. The teachers critiqued the lessons and lesson plans and they worked in small groups devising alternate teaching strategies for specific lessons. The second retreat was held at the beginning of the spring, 1967 semester. The same format was followed. Experienced teachers led discussions.

A second workshop, attended by six new teachers, was held in June and July, 1966 at San Jose State College. A regular member of the San Jose State College Economics Department staff conducted the workshop with the assistance of a teacher who had participated in the first workshop and who had taught ECON 12 in the spring. The purpose of the workshop was five-fold: 1) to develop the competence of the participants in dealing with the economics concepts presented in ECON 12, 2) to explain the rationale of ECON 12 (the course structure and the teaching strategies),3) to analyze the materials and suggest revisions, 4) to prepare an ECON 12 course, or some variation, for use in the participants' own classrooms, and 5) to explore the problem of integrating ECON 12 materials into the other social studies. Each participant was required to prepare an outline of how he would use the materials in class, together with a daily log of his workshop activities.

The first week was spent familiarizing participants with the course materials. The investigators presented the course rationale and participants studied the structure and teaching strategies, particularly the use of strategies to stimulate student participation and inquiry. The participants were soon convinced that too much reliance was placed on inductive teaching methods in which students were guided through analysis to a "discovery." Teachers contributed valuable suggestions on how didactic presentations could be integrated with inductive learning experiences so that instructional time could be used more effectively and the course speeded up.

The second week was largely devoted to a revision of Unit I, lessons 1, 2, and 3, together with proposals for revising the remaining lessons in the unit. This second week was particularly fruitful for both the ECON 12 staff and the participants, all of whom worked well in the small group atmosphere.

The last week was divided between staff presentations of micro-economic analysis and the use of economic models, and participant work on individual projects. The hectic pace of the last week reduced workshop effectiveness and reduced enthusiasm of participants somewhat. The first real exposure to economic analysis left most of the participants rather apprehensive about their own competence in handling economics in the classroom, and the pressure to finish projects prevented some participants from doing as careful a job as they wanted to and were capable of doing.

The results of the workshop can be summarized under the five purposes set forth above:

1. The teachers did develop increased competence in dealing with economic concepts, but not enough to satisfy their desire to be "on top" of the subject. This raised the question of whether or not any three-week teacher training program could adequately enough prepare teachers in the subject to give them confidence in their ability to handle economics in the classroom.

2. The teachers were successful in learning about the course rationale, structure and teaching strategies. They could discuss these areas of course design intelligently.

3. Unit I, Lesson I, 2, and 3 were completely revised, and proposals for revising the remaining Lessons were made.

4. Two of the participants submitted outlines for integrating the ECON I2 materials into U.S. History, and, in so doing, helped to satisfy the purpose of integrating ECON I2 materials into the other social sciences.

The workshop was a qualified success. The use of small group work involving teachers and staff members has become a standard part of the ECON I2 technique of teacher training. Furthermore, valuable information was gathered on how best to give the teachers formal instruction in the necessary economic principles and analytic techniques, and how to schedule participant activities so that adequate time would be available for working on individual projects.

Two of the teachers returned as participants in the ECON I2 Institute sponsored by the National Science Foundation at San Jose State College in the summer of I967. They became leaders among the teachers, supplying enthusiasm, support and constructive ideas.

COURSE FORMATIVE EVALUATION, SPRING 1966

Although evaluation has been a continuous process from the submission of the original proposal, the major effort to gather formative data was in the spring, 1966 trial of ECON 12. Revised versions were tested during the fall of 1966 and the spring of 1967 and financed by the Joint Council on Economics Education. Evaluation procedures and results were less extensive for these later trials because the major course strategy decisions had been made; the later revisions involved alterations in emphasis, refinements in course objectives, tactics, and focus,[1] and the introduction or elimination of specific learning experiences. A summative evaluation comparing this course with others cannot be conducted until the materials are in final form. The current course version was used during 1967-68 in Contra Costa County and in classes in Santa Clara County currently participating in the National Science Foundation Cooperative college-schools program. The evaluation of the 1967-68 test will provide important information for preparing teacher orientation and training programs.

Table I summarizes the range of evaluative procedures used and the number of participants involved in the spring, 1966 evaluation. Table II describes the high schools and students involved in the Contra Costa County experiment. Table III lists participating teachers and the extent of their participation.

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[1] For a report of the 1966-67 trials and evaluation of ECON 12, see Developmental Economics Education Program Final Report, Part II, Contra Costa County Department of Education, 75 Santa Barbara Road, Pleasant Hill, California, 1967.

Table I

Summary Description of Types of Evaluation and Extent of Participation, Spring 1966

Type of Evaluation	Number of Schools and Individuals			
	Schools	Classes	Teachers	Students
Student Performance				
Test on Unit I, lesson 1-3	11	27	14	734
Test on Unit I, lessons 4-5	12	31	16	1146
Test on Unit I	10	24	13	567
Test on Units I and II	3	7	5	222
Student Attitudes About the Course				
Student group interviews	5	10		50
Student Attitude Survey	6	15	8	377
Class interviews	3	8	5	167
Teachers' Attitudes				
Teacher interviews	4		4	
Lesson evaluations by teachers	16		16	
Monthly meetings			almost all	
Sept., 1966 weekend retreat			almost all	
Staff Evaluation				
Classroom observation	16	34	18	
Audio tape transcriptions	1	2	1	50

Table II

Description of the classes participating in the Spring, 1966 try-out

District & School	Location	Number of Sections Type & Size of Class: No. Sections	Heterogeneous	Homogeneous	Small	Large Lectures	Family Income: Upper Middle	Middle	Low-lower Middle	Racial Pattern: White	Mixed	Ecology: Urban	Suburban	Rural	No. Teachers	Kind of Course: Elective	Required	Participation: No. Weeks	Units & Lessons Used
Acalanes																			
Acalanes	Lafayette		X				X			X			X		1		X	6	I, 1-3
Miramonte	Orinda	3	X			X	X			X			X		2		X	9	I, 1-4
Antioch	Antioch	5	X		X			X	X	X		X			1		X	18	I;II, 1-3
Liberty	Brentwood	1		X	X				X		X			X	1		X	18	I:II, 1-3
Mt. Diablo																			
Clayton Valley	Concord	4	X		Y			X		X			X		1		X	18	I
College Park	Pleasant Hill	5		X	X			X		X			X		1		X	18	I
Pacifica	West Pittsburg	2		X	X			X	X		X		X		1		X	18	I;II, 1-3
Pleasant Hill	Pleasant Hill	2		X	X			X		X			X		1		X	18	I;II, 1-3
Ygnacio Valley	Walnut Creek	2		X	X					X			X		1		X	18	I:II, 1-3
Pittsburg	Pittsburg	6		X	X				X		X	X			3		X	18	I
Richmond																			
DeAnza	El Sobrante	2		X	X				X			X			1	X		18	I
El Cerrito	El Cerrito	1	X		X		X				X	X			1	X		18	I
Ells	Richmond	2		X	X				X		X	X			1	X		18	Supplementary only
Richmond	Richmond	2		X	X				X		X	X			1	X		18	
San Ramon	Danville	3	X			X	X			X			X		2		X	12	I

Table III

Schools and Teachers Participating in ECON 12 Experimental Classes, 1964-67, and Extent of Participation

District and School	Teacher	Preparation in Economics	Participation		
			Workshop 1965	Try-Out 1966	1967
Acalanes District:					
Acalanes	Hal Olson	6+	X	X*	
Miramonte	Michael LaMorte	Minor	X	X*	
	Robert Anderson		X	X*	
Antioch District:					
	Robert Evans	6+	X	X	
	Albert Kain	6+	X		
Liberty District:	Peter Springer		X	X	X
John Swett District:	Ralph Cox	Minor			X
Mount Diablo District:					
Clayton Valley	Richard Courtney	Minor	X	X	X
	John Kerr	Minor	X	X	
	Ben Nelson	Minor	X		
College Park	David Peters	6+	X	X	X
	Parker Pollack	Major			X
Pacifica	David Bond		X	X	X
Pleasant Hill	S.N. Larson	Major	X	X	
Ygnacio Valley	Gordon Crocker	6+	X	X	X
Pittsburg District:					
	Roger Davidson	6+	X	X	X
	Nancy Parent	6+	X	X	X
	Jack Tackett	BBA	X	X	X
Richmond District:					
De Anza	George Smith	Minor	X	X	X
El Cerrito	Ralph Miller			X	
	Irv Janeiro				X
Ells	Richard F. Kidd	6+	X	X*	
Richmond	J. Paul McGinnis	Minor	X	X*	
San Ramon District:					
	Armand Gentile	6+	X		
	James Molla	6+		X	
	Merle Newsom	6+	X	X	

*These teachers did not participate fully in the Spring, 1966 try-out. They used the materials as supplements to their normal course of study.

Student Performance

Students completed four objective examinations which made use of four-choice questions testing the lesson behavioral objectives. The first two examinations (test 101 and 201) covered objectives from lessons 1-3 of Unit I, the second covered lessons 4-5 of Unit I, the third examination (test 301) tested all of Unit I, and the final examination (test 401) asked questions about Unit I and the first six lessons of Unit II. The first three examinations contained fifty questions each and the final examination had 84 questions (50 questions were on Unit I objectives). Table IV summarizes the results by class and for the total groups of students. For the total group the mean scores on the Unit I questions on each test were: Test 101--29.3; Test 201--30.5; Test 301--33.1; and Test 401--34.6. The relatively high mean scores indicate that students did achieve the behavioral objectives. The higher scores in the later tests probably reflect improved item writing and increased student familiarity with the form of questioning and with the subject matter.

Differences in the means and standard deviations among classes were analyzed to identify possible factors contributing to achievement and effectiveness of the course in varying teaching situations. Table V summarizes the differences in performance between groups of classes, grouped according to urban-suburban environment; socio-economic class in the community; class size; ability grouping; ability tracks. The numbers in column I refer to the schools included in the group. To avoid disclosing results by school, only the school code number is given. For the urban-suburban and socio-economic classifications, results were computed for two alternative ways of grouping schools and both groupings are reported in the table. Column 2 lists the tests used to make the comparisons.

Table IV

Mean Scores and Standard Deviations for Three ECON 12 Examinations, Spring 1966, by School & Class

School	Test 101			Test 201			Test 301			Weighted Mean	
Number	N	$\overline{X}$	S	N	$\overline{X}$	S	N	$\overline{X}$	S	N	$\overline{X}$
County Totals	734	5.9	29.3	1146	7.9	30.5	567	7.0	33.1	2447	30.14
Schools & Classes											
01				27	7.9	27.8					
				26	8.4	22.5					
				24	7.5	26.6					
				20	7.1	26.9					
				20	8.1	26.7					
02	32	5.4	31.0	33	5.0	33.5	34	6.0	33.6	135	33.3
	29	6.5	27.1	30	5.2	34.4	28	5.5	33.9	118	32.2
	23	4.5	27.2								
	30	5.3	29.6	31	4.0	33.5	33	7.2	32.1	128	32.2
	25	6.0	30.6	24	5.6	34.9	26	6.5	33.6	104	33.6
03	23	6.3	27.8	22	5.6	31.3	22	7.2	32.4	89	31.0
04	34	5.5	32.7	34	3.7	35.8	30	4.3	37.3	132	35.6
	35	5.3	30.9	34	3.1	35.7	35	5.0	36.0	140	34.4
05	34	3.8	29.4	34	4.1	29.7	34	6.2	31.1	102	30.1
	24	5.1	23.5	24	4.7	27.0	23	7.2	25.6	71	25.4
06	31	5.4	27.1	30	7.6	27.4					
07	30	6.0	28.7								
08	29	6.0	30.3	30	4.4	32.3	28	5.9	34.5	87	32.3
10	19	5.0	33.4	19	5.5	36.5	19	6.1	38.6	57	36.2
	15	3.7	26.3	18	4.5	25.3	19	3.8	24.[illegible]	52	25.2
	28	3.8	26.4	31	4.7	30.4	32	6.5	28.[illegible]	91	28.4
	28	5.3	27.0	25	4.5	31.3	28	5.4	31.0	81	29.7
	30	5.3	30.2	30	5.5	33.9	28	5.5	33.3	88	32.4
	15	4.4	31.5	17	7.4	36.0	17	6.5	36.1	49	34.7
	27	4.4	24.5	22	3.5	30.0	23	10.9	31.7	72	28.5
	29	4.4	24.3	24	4.9	30.3	27	5.2	28.8	70	31.6
11	38	4.9	31.8	37	4.7	33.4	36	4.8	35.6	111	33.6
	28	4.5	33.3								
	24	4.0	28.0								
13	15	2.4	34.1	16	3.1	38.0	15	4.1	40.5	46	37.5
	29	4.7	33.7	27	3.6	37.7	29	4.7	37.8	85	36.4
14	30	4.9	31.0	31	5.4	34.2					
09				116	5.3	32.9					
				108	5.5	32.1					
				91	5.8	33.0					

Table V

Summary of Differences in Class Examination Means,
Spring 1966, Try-Out of ECON 12

COL. I	COL. II	COL. III	COL. IV	COL. V
Description of Sample[1]	Test(s) Involved	Number of Students	Weighted Mean	Weighted St. Dev.
ENVIRONMENT				
urban: 1,5,6,10,13,14	201	465	30.51	6.04
suburban: 2,3,4,8,9,11		591	33.29	4.89
urban: 2,3,4,11	101,201,301	874	30.72	5.85
suburban: 5,8,10,13		847	32.77	5.29
INCOME				
high & medium:				
9 & 11, 2,3,4,8,14	201	622	33.33	4.91
low: 1,5,6,10,13		434	30.24	6.09
high: 2,3,4,11	101,201,301	706	32.32	5.35
low: 5,8,10,13		961	30.87	5.81
CLASS SIZE				
large:[2] 4,5,9,11	201	454	33.00	4.75
small: 1,10,13		110	31.95	6.14
ABILITY GROUPING				
heterogeneous: 1,2,3,9	201	573	31.69	5.81
homogeneous: 4,8,10,11,13		364	33.41	4.73
ABILITY TRACKS				
A: 4,8,10,11,13[3]	101,201,301	725	34.46	5.86
B: 10		366	28.66	5.09

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[1] Numbers indicate school code numbers

[2] large=32 or more students in class; 7 classes in this sample
small=20 or fewer students in class; 6 classes in this sample

[3] 9 A classes: 3 classes in school #10, 2 in #4, 2 in #13
5 B classes: all in school #10

The significant differences are apparent and what one would predict. Students from industrial areas did not do as well as students from suburban schools; classes of students from high income families did better on the tests than classes of students from lower income families; classes homogeneously grouped did significantly better than did those heterogeneously grouped; A classes did far better than B classes; large classes did better than small classes.

The item analysis of questions on each test was used to determine the kinds of questions students missed and to identify possible weaknesses in instruction (see Appendix C). Results were analyzed by lesson, by subjects and tasks within lessons, and by the effectiveness of the question in testing course behavioral objectives.

Tests 101 and 201, the examinations on lessons one to five, indicate that students scored lower on questions pertaining to lessons two and four. However, in the unit examination, students seemed to do well on the four questions from lesson two and the five questions from lesson four.

The test was analyzed to determine what kinds of cognitive tasks students were required to perform and a description of the procedure used in this analysis appears in Appendix C. There were three general forms of questions: direct recall of knowledge (type 1 questions), tests of comprehension and of knowledge (type 2 questions), and tests of student ability to apply new knowledge to a problem without prompting (type 3 questions).

Table VI below summarizes the number of questions in each category on a given test and the number of questions in each category with high and low correct responses. High response means 77% or more of the students chose the correct alternative. Low response means 45% or fewer of students chose the correct alternative.

The largest proportion of the questions on all four examinations tested comprehension, only a few applications questions were included, the remaining questions tested direct recall or discrimination. As one might expect, student responses showed a larger percentage of incorrect responses and a smaller percentage of correct responses for the questions requiring students to perform a higher level cognitive task.

Low correct response questions were studied more carefully to try to get more specific information about the kinds of subjects or tasks with which students had difficulty. In the test on lessons in Unit 1, students missed the following kinds of questions: Lesson 1 - requiring them to discriminate between scarce and nonscarce goods, given information about wants and resource availability; Lesson 2 - questions requiring identification of diminishing returns, defining alternative costs, and comparing the productivity of two different factories; Lesson 3 - questions requiring students to distinguish between the qualities and functions of money, and questions requiring them to discriminate between examples of real or financial capital and investment; Lesson 4 - questions requiring students to identify examples of saving and investment in a primitive economy, and the difference between saving and investment; Lesson 5 - questions requiring students to identify the assumptions necessary for constructing the circular flow model, also a question requiring them to discriminate between examples of macro and micro economics; Lesson 6 - no glaring problems in student responses; Lesson 7 - questions requiring students to discriminate between examples of pure and applied economics.

Many of these questions have one thing in common. They require students to use a precise definition of a concept to categorize examples of the concept when the definition is not given in the question. Our interpretation of these results is that students had difficulty making these discriminations when the concept defined was either difficult or different from their own use of the word; therefore the distinction was irrelevant to them. We had not justified the need to make the distinction.

Some of the questions generally missed by students were either poorly constructed, overly ambiguous, or did not really test course behavioral objectives (see, for instance, item 37 on test 101; items 1 and 5 on test 201; items 15, 28, 30, 32, and 34 of test 301 in Appendix C). Many of the questions to which students responded correctly had one or more weak distractors. The item analysis permitted us to identify and improve these items for the 1967 test.

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TABLE VI

SUMMARY TABLE OF TYPES OF QUESTIONS & STUDENT PERFORMANCE ON EXAMINATIONS SPRING, 1966

Number of High and Low Correct Responses to Questions by Test and Kind of Cognitive Task

Type of Cognitive Task	101			201			301			401-501					
	Lessons 1-3			Lessons 4-5			Unit I Exam			Final Exam			Total		
	#	High	Low	#	High	Low	#	High	Low	#	High	Low	#	High	Low
Knowledge	15	7	2	21	3	3	29	7	3	36	19	4	101	36	12
Comprehension	29	6	12	25	3	6	20	8	2	44	9	18	118	26	38
Application	6	-	3	0	-	-	1	-	-	4	-	1	11	-	4
TOTAL	50	13	17	46	6	9	50	15	5	84	28	23	230	62	54

Student & Teacher Attitudes Towards the Course

Description of Evaluation Procedures. Students' reactions to the course and to the study of economics were obtained through the administration of an attitude questionnaire, interviews of students conducted by a psychologist-consultant, interviews of classes by the principal investigators, and weekly observation of classes by staff members. Student attitudes were obtained indirectly through interviews and informal discussions with teachers.

The attitude questionnaire and results are summarized in Table VII & VIII below. The questionnaire was composed of fifty four-choice questions on student reactions to the course in general and to the specific subject matter, student materials and teaching methods employed in Unit I of the course. The questionnaire was pretested on a sample of ten students chosen at random from three classes at Pittsburg High School.
The students completed the first draft form and discussed possible ambiguities or other problems with the psychologist who constructed the questionnaire. It was revised and administered to all classes after they completed Unit I.

Table VII

AN ABSTRACT OF STUDENT RESPONSES TO REPRESENTATIVE QUESTIONNAIRE ITEMS

Question	Description of Scale Range	Percent of Students Responding ++	+	-	--
How interesting is ECON 12 so far?	interesting/dull	2%	27%	43%	28%
Most of the time while in class, did you find yourself	interested/bored	2	30	53	15
While doing the worksheets, did you find yourself	interested/bored	7	36	46	12
Did you think the worksheets	helpful/confusing	43	29	5	22
Considering the number of worksheets, should there be	more/none	4	41	46	9
Liked filmstrips	very much/not at all	11	34	40	15
Watching filmstrips, I was	interested/bored	16	52	16	10
More films and strips?	more/none	48	30	12	10
Films compared to those shown in other classes	much/better/confusing	10	38	17	33
Importance of films to course	important/not important	31	28	35	6
How did you feel about scarcity film strip?	learned a lot/confusing	11	50	29	7
Filmstrip of Prod. specialization?	learned a lot/ confusing	12	56	21	8
Filmstrip "Made by Indians"	learned a lot/ confusing	12	43	31	7
Circular Flow Film	learned a lot/ confusing	17	30	21	21
How informative and relevant were teacher's lectures?	informative & interesting/off topic & dull	37	47	6	7
Should there be ________ lectures	more, same, fewer, none	21	50	23	6
Lectures are ______ important.	very/not	39	49	19	3
Like class discussion	much/not at all	37	40	19	3
More/Less class discussion?		52	38	9	2
Importance of discussion?	most important/least important	22	57	11	4
Difficulty of readings	difficult/important easy	3	16	58	19

Table VIII

SUMMARY OF STUDENT ATTITUDE QUESTIONNAIRE RESPONSES: ATTITUDES TOWARD METHOD AND MATERIAL

Percentage student responding on questionnaire

Attitude	lecture	discussion	film/fs	worksheet
"most instructive"	26%	45%	17%	11%
"least helpful"	31	19	32	14
"would like more"	14	42	35	6
"wanted more"	21	42	48	4
"wanted same"	50	38	20	41
"wanted less"	29	10	22	55

To compensate for the inherent limitation of the multiple-choice type of questionnaire, an open-ended interview was scheduled. A trained interviewer interviewed groups of five students from five different high schools and classes. The criteria for choosing the classes and schools was as follows: (1) high schools were chosen from both prevailingly high and low socio-economic background; (2) low socio-economic high schools included a school with racial minorities and a school with primarily caucasian population; (3) both "A" and "B" track classes were included from the high and low socio-economic schools. Teachers chose the students to be interviewed and were asked to select verbal students from both sexes who represented the range of abilities in the class.

The interview schedule consisted of a list of topics to be covered during the course of the interview, thereby permitting the interviewer to formulate the actual questions so as to contribute to establishing rapport. In addition, the interviewer used a set of student and teacher materials to go through the course to get student response to specific lessons and materials. The interviews lasted approximately forty-five minutes; they were taped and transcribed, then analyzed by the interviewer.

Teacher attitudes were sampled through 1) interviews with a staff psychologist, 2) attitudes expressed during monthly meetings of all cooperating teachers, either meeting alone, or with the principal investigators, and 3) classroom observations by staff members.

Four teachers were interviewed by the interviewer in an open-ended interview. The interviewer took notes and summarized these for the investigators' interpretation.

Feedback on teacher attitudes was most direct during the monthly Saturday morning meetings held in the offices of the Contra Costa County Department of Education. At these meetings, the staff explained the new materials which were ready for the classroom and the teachers gave a critique of the materials they had been using. Three times the teachers met alone to criticize both the materials and the projects' methods of investigation. These meetings were tape recorded or recorded by a teacher acting as secretary.

The staff members were assigned to observe a group of teachers once a week throughout the trail. In an attempt to objectify and standardize evaluations, Dr. Frank Bradford, of the Contro Costa County Education Department, trained staff members in the IOTA.[1] evaluation procedure. The IOTA (Instrument for the Observation of Teaching Activities) system is an objective form of teacher evaluation in which observers receive training in standardized observation techniques. IOTA allowed us to judge general teacher ability, to identify teaching strategies, to observe student performance, and student-teacher interaction. Below is the format for the evaluation form.

ECON 12 SUPERVISOR EVALUATION FORM SCALES

Teacher__________School________________

Date_____Unit_____Lesson_____Day______

1. subj. matter preparation
2. organiza. for instruction
3. teaching techniques
4. motivation for learning
5. classroom control
6. instruc. materials and equipment
7. teacher's evaluation of students' progress
8. teacher-student rapport
9. encouragement of student initiative & participation
10. provision for different
    a. individual learning
    b. group ability

Time	Observation	Scale	Remarks

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[1] Developed by Lucien B. Kenney, Stanford University, and Ruth Bradley, Viola Owen, and Eva Washington, San Jose State College.

Summary of Student and Teacher Reactions.

The Course. Generally, students were positive about the course but not always certain of its value to them. "It's very interesting, and we've learned a lot; its just that we don't know what to do with what we've learned." One prevalant theme was a desire for more immediate relevance. "I think what they (the course designers) should really do is try to make the course a little more concise and bring in more class discussion about everyday stuff." The "everyday stuff" desired centered on their immediate problems-managing money, the draft, financing college--and on the major public issues--the war in Vietnam, international food imbalances, the underdeveloped economies, Russia, and the threat of communism. There was also a mild desire to have the mysteries of inflation, stock market fluctuations, and the balance of payments made clear.

Lesson 4, Unit I, a study of the economic organization of a northwest American Indian tribe, represented the extreme of irrelevance and the exotic and many students never realized the purpose of studying a primitive society. Those who did, still could not see spending the time. It was the Indians whom the students most frequently offered for sacrifice for more discussion of contemporary problems. The prevalent mood of many classes was one of concern about the present and future, not the past.

Instructional Materials. There was no text prepared for the spring, 1966 test and its absence was often noted by the students and teachers who were used to having an authoritative source for course content. Instead of a text, worksheets were the primary source of course organization. In a sense, the worksheets constituted a macro-program for the course which directed most student activities; e.g., they presented information, provided a form for note taking, stated discussion questions, problems, and projects, and detailed homework assignments. Their major instructional function was to organize inductive learning sequences to allow students to discover the meaning, importance or interpretation of organizing concepts in economics. Most of these exercises consisted of a series of open-ended questions which students, as a small group or total class were to discuss. In the process of exploring the answers to the sequence of questions, they would expand their understanding of the organizing concept. Then students were required to learn a precise definition of the concept (as defined in economics). It was hoped that through this experience students would relate the new meaning to their old understanding of the word. This procedure was employed with almost all important definitions--scarcity, productivity, specialization, money, saving, investment, etc.

As Table VII indicates, students were of several minds about worksheets; 58% thought they were boring, while 72% found them helpful. The interviews uncovered a good deal of confusion about the purpose of the worksheets. Much of the student confusion arose from teacher confusion and vacillation in use of the worksheets. Sometimes the student was made responsible for completing the worksheets as a homework assignment and at other times the teacher dictated the answers. "It was like this--'fill in the blanks, but don't fill in the blanks, till we tell you what to put in them!"

The teachers used the worksheets in various ways. Some entered into the spirit of research and used them as instructed, others ignored them almost completely. "I seldom assign them. They are a god-awful mess. I could not do them myself." Some of the teachers started out in the spirit of research but abandoned the worksheets in the face of student dislike. Strangely enough, however, the worksheets had a handy validity because almost no teacher wanted them eliminated. The basic response was "change them until they work properly." The changes most often recommended were:shorten them, simplify them,make them more flexible, make them optional.

Students reacted adversely to what they felt was the "rigidity" of the worksheets. Perhaps this was a reaction against the requirement of following the sequence of questions or of learning new definitions for old words. This reaction could have been reduced had the students first been convinced of the value and necessity of more precision. Their reaction might also have been avoided if teachers had had a clearer understanding of the difference between strategies intended to engage students in an intellectual game of exploring ideas and the meaning of words and those requiring students to learn the difference between the common and precise usage of economic terms.

This adverse reaction has been met in two ways. The text has now been completed and presents the basic thread of organization. Many of the worksheet learning experiences have been moved to the teachers guide so that the teacher has been given greater control over sequencing and pacing, or transformed into programs.

Teaching Strategy. The lessons were designed to increase student participation in the classroom and the questionnaire, interviews, and observations all made it clear that students wanted to participate. Unfortunately the worksheets, either through design errors or misuse, often discouraged participation. The programmed instruction sequences insured participation by the individual, but often intruded upon the sense of active group involvement in the learning process.

Although students wanted participation, neither they nor the teachers were enthusiastic about the form of participation required in inductive teaching. Inductive teaching aroused the strongest emotional response from both teachers and students. "At first," opined one girl, "it was all self teach." "But it made you think," replied a boy in her interview group. From another, "If they told us beforehand what they expected and what we were supposed to look for--O.K., fine; but they expect us to watch this kaleidescope thing and then all of a sudden say, 'Ah hah!'--it just doesn't work that way." The students seemed agreed--"Just give us the main ideas; the main concepts, and then let us use them to get at what bothers us."

Many teachers didn't believe in induction. Some wouldn't even try, others tried and quickly failed. "Inquiry in a vacuum can't work," said one teacher; and her colleague agreed, "It is presumptuous in trying to elicit concepts from students who have never had any experience with it." For a very few, the inductive method "worked very well."

By the end of the Spring, 1966 semester, teachers were more confident about the inductive method and informed the interviewer that they felt it would be more successful if used selectively: they felt the fundamentals should be handled didactically and the problems inductively. Once the students cut their teeth on some problems, the course should deal more with issues that interest the students. Both students and teachers would like to get the basic principles down as quickly as possible.

The Lesson Plans. Though they later confessed that they didn't always understand what the course was all about or how the lessons fitted together, teachers, for the most part, accepted the goals of the course. They were overwhelmed by the thoroughness of preparation of lesson plans and often remarked at the monthly meetings that this or that lesson worked "like a charm." But after a while the thoroughness of the instructor's guide began to pale. They began to feel that the carefully sequenced, day-by-day outline restricted them and that it was inappropriate to their real needs. "There's too much information in too many places," said one man. "Simplify it and cut it down." Another said, "Make the goals of the units and the individual lesson clearer." Teachers felt that they would get more use out of the guide if there were an introduction to it that simply stated the rationale of the course and the way in which units and lessons and teaching strategies fitted into the overall design of the course. Some teachers lost sight of the goals of the course: "I didn't know where I was going," some of the teachers seemed to be saying. But all the teachers felt the guide should be kept. Time and again they praised the guide and offered suggestions for its improvement.

It was evident from the supervisors' reports that few of the teachers followed the 'spirit' of the lesson plans; teachers were more faithful to content and objectives than to method. As a result, many of the lessons did not "come off." Looking back over the semester, teachers and supervisors saw that too much time had been spent on most of the lessons, particularly the hated Lesson 4. Though the instructors were handicapped by working with a course that was being turned out only days before they taught it, most of them tried to achieve the objectives for each lesson one way or another.

The Tests. Finally, as one might expect, the course tests came under attack. The main burden of the students' complaints about the tests was that they did not test what had been learned in the course. Since tests were based on the course behavioral objectives, if the students' complaints were valid, teachers did not base their teaching on the behavioral objectives. Equally likely, we decided, the behavioral objectives and, therefore, the tests did not test the significant learning which took place in class or which the course learning experiences were designed to bring about. This required a major evaluation and revision of the whole structure of course behavioral objectives to make them more nearly approach the course goals.

Summary. To summarize the findings, in the spring, 1966 test, major problems arose because of (1) the absence of a text; (2) reliance on inductive teaching strategies which teachers could not handle; (3) reliance on worksheets to organize the course and the inductive learning sequences; (4) inadequate justification of lessons, or the learning sequence within the lessons; (5) weak transitions from one lesson to the next; (6) too much detailed specification of teaching tactics which were inappropriate for some classes or unduly restrictive on teachers; (7) inadequate emphasis on current problems of interest to students. The result of these weaknesses was to slow down the pace of the course, destroy the effectiveness of some lessons, such as lesson 4, and generally call into question the relevance of the course. Despite the complaints, by the time the teachers completed the semester, most of them had begun to understand and accept the course rationale. Generally, they liked the course organization; they did not want it changed. But they wanted the course cleaned up, perfected.

PROJECT ACTIVITIES, 1966-67

Project activities during academic year 1966-67 were almost entirely financed through the Contra Costa County DEEP project and they are described in the DEEP final report.[1] Here we will summarize results in order to complete the project chronology and to provide an adequate background for understanding the finished course described in the next chapter.

Course materials were expanded and revised to conform to the spring, 1966 evaluation, and the revised course was used in the spring of 1967 by eleven teachers in eight schools, a try-out involving four hundred fifty-seven students. Evaluation procedures were altered somewhat. Teachers were not asked to submit written evaluations; instead, they were interviewed two or three times during the semester by a staff member for their own and student reactions. In addition, four of them were interviewed by a consultant psychologist, and we got reactions from monthly teacher meetings. Student reactions were obtained through small group interviews and a few class interviews. Classroom observation by staff members was reduced to visiting each teacher about once a month. Only one test of course achievement was administered, an examination covering Unit I; however, we did administer pre and post standardized tests and an attitude questionnaire. Analysis of this testing program is described in the Contra Costa County DEEP final report.

This evaluation showed the need for three kinds of changes in course organization & materials: (1) the need to speed up the course pace to permit any average or above average class to complete two or three units in eighteen weeks; (2) the need to orient teachers to the special characteristics of the course--objectives, strategies, and the role of the teacher; (3) the need to give students more practice doing economic analysis.

We are hoping to solve these problems by: (1) reorganizing the course around the theme of economic growth, the relation between economic organization and capital accumulation; (2) rewriting the Unit I text and the teacher's guide to carry out this change in emphasis; (3) writing a short but instructive introduction to the teacher's guide describing the basic objectives of the course, the specific function of each kind of instructional material in the teaching system, the basic course teaching strategies, the function of the teacher; (4) writing a clear rationale for each lesson and each learning experience in the teacher's guide; (5) adding new learning experiences or emphasizing old ones on economic analysis, e.g., the use of definitions in lesson two, of models in lesson four, and of analysis of conflict in lesson six; (6) eliminating marginal learning experiences which slow down the course pace.

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[1] _Developmental Economics Education Program Final Report, Part II, op. cit._

CHAPTER 4

DESCRIPTION OF THE COURSE

This chapter describes the present form of the course and the instructional package. Most of the materials described below were not completed on the Office of Education Grant; indeed, they are not complete at the time of this writing. The Office of Education Grant financed the spring 1965, and the spring, 1966, test editions of Units I, II, and III; with a few exceptions, all work on course materials after July, 1966, has been financed from other sources. Tables 1 & 2 in chapter three give an inventory of the materials completed on this grant; all of these materials are submitted as a special supplement to this report.[1]

COURSE GOALS AND DESIGN STRATEGY: DESCRIPTION AND RATIONALE

General Course Goals

A separate economics course or unit is usually part of the social studies and general education curriculum in high schools, a sequence of required courses which are intended to help students learn about this and other societies to permit them to function adequately in their various social roles. We have designed ECON 12 course goals to contribute to this overall objective through helping students to develop the economic reasoning powers which are essential to making rational economic choices and taking effective action in our society. Here "rational" decisions are those which yield the maximum satisfaction from a given situation; they are an ideal towards which we strive.

Developing economic reasoning requires students to learn how to evaluate alternative actions but also how to choose between alternative goals. For instance, when a person chooses which car to buy, assuming he knows why he wants a car, the rational economic choice is the cheapest car which serves all of these functions. On the other hand, economic decisions often require that the person choose between goals, and if the individual wants to attain conflicting goals, then his choice is more complicated, for then he must choose that combination of means and ends which gives him the greatest satisfaction. Consider the case of an elderly person who needs medical insurance and who traditionally disapproves of public services and the accompanying higher tax rate. A rational choice about whether or not to favor medicare requires that he choose among ends as well as means; it requires a reorganization of values as well as an evaluation of costs. If the man decides to favor medicare, and if he is rational, he must alter his views on the general value of public services. Thus, rational judgements about alternative ends and means require a person continually to revise his priority system of goals and values towards a more and more consistent value system.

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[1] ECON 12 Student Materials and ECON 12 Teachers Materials (Units I & II), Test Edition, Spring 1966, op. cit. This edition has been placed in the public domain but has not been printed for general distribution.

Economics as a science is the study of rational economic choices and of the economic organizations which perform these decision making functions in a society. Economic analysis emphasizes evaluation of the efficiency of alternative actions when goals are given. When welfare questions are studied (questions involving values), the economist as scientist is not interested in making judgements; rather, he tries to determine whether or not a rational judgement is possible. He studies rational decision making, but in his role of social scientist he usually refuses to make economic choices involving value judgements.

The fact that rational economic decisions involve questions of valuation as well as of evaluation means that the high school economics curriculum must necessarily differ in purpose and organization from an introduction to the "science" of economics. It must combine training in economics which gives insights into the process of economic decision making with practice in making rational judgements.

Training students in economic reasoning not only furthers social studies curriculum goals; it also satisfies the demands for economic education made by education and community leaders, who advocate more economics in the curriculum. These groups want students to learn economic reasoning skills and information about the functioning of the U.S. and other economies for one or more of the following reasons, so that:

1) they can promote and protect their own personal economic interests;
2) they understand the function of important economic organizations such as private businesses, labor unions, financial institutions, government agencies, and the importance of monetary rewards as primary economic incentives;
3) they become responsible citizens who vote on the basis of logical evaluation of issues, who participate in politics as volunteers or as professionals, and who devote time to public service;

(4) they become familiar enough with the types of problems studied and the methods employed by economists to value economic analysis as a means of solving social and political problems, and to interest college-bound students in continuing their economics education.

To summarize, the course goals are to introduce students to the power of economic analysis by training them to use economic knowledge and reasoning to analyze public policy controversy and to make personal economic decisions based on an understanding of the options available to them in this economy. After eighteen weeks students should be able to (1) answer questions about the economic structure, operation, and performance of the U.S. economic system; (2) perhaps answer similar but more general questions about other economies; (3) relate knowledge of the structure and operation of our economy to their own personal economic decision making; and (4) use this new capability in economic reasoning to evaluate newspaper and magazine reports or polemics about current economic issues.

Rationale

Most social studies courses in our schools aim at strengthening such values as the dignity of man, democracy, striving for a better material life, loyalty to country, etc. We accept these values without demur but with the observation that they are all part of the broad humanistic value system of western society, a value system which has its cognitive base in a belief in the validity of rational discourse and the scientific method. This might be called the procedural aspect of our values while democracy, free enterprise, and patriotism are the substantive aspect. In our opinion, it is more effective to teach the cognitive processes which inhere in rational discourse and the scientific method than it is to advocate substantive values. In this way, hopefully, students will become rational, competent, and independent thinkers who value their own and others' intellectual freedom. Insofar as this is accomplished, the substantive values of our culture will be better understood, critically examined, and, if accepted, will be more firmly held. In short, we assume that the best defense is no defense, but rather analysis. We claim this position is particularly important in helping disadvantaged and disenchanted youth who may already have eschewed the socially accepted values.

The emphasis on the procedural aspect of values is an example of our general emphasis on process. ECON 12 students should not be taught what to think but rather how to think. This concern with process is illustrated by the position of non-advocacy which this course takes with regard to the study of economic systems and institutions. The course neither promotes nor denigrates particular economic systems or organizations. Given any set of goals, we accept efficiency in achieving these goals as the rational basis for evaluating economic systems and organizations. Of course, our personal opinions (which reflect our own, students' and society's values) determined the choices of systems and institutions to be studied.

This approach permits us to treat dispassionately and respectfully all economic systems, and all institutions within a system. The strengths and weaknesses of primitive societies, underdeveloped countries, the Soviet and the U.S. economies are all legitimate topics for study. By adopting a position of non-advocacy we allow students to examine controversial issues with candor. Planning vs. free markets, management vs. labor, welfare vs. self-reliance, are all amenable to analysis.

Thus, the course introduces students to the use and value of scientific work to solve social problems. In a world dominated by the sciences in the technological fields it is, we believe, essential to make students aware of the application of science to social affairs. Economics is an excellent vehicle for training students in scientific behavior and it offers an opportunity for students to apply the scientific method to the study of social organization and social problems. In particular, ECON 12 applies mathematical thinking to economics, it teaches students about problems of observation and measurement, it shows the usefulness of models in solving empirical problems, and it applies systems analysis--a problem-solving mode which is of increasing importance, particularly in applied science (engineering, both social and technological).

We hope that the course experience will encourage students to adopt some basic scientific attitudes and ways of thinking about economic matters which will permit them to make more reasoned decisions about their personal economic affairs, decisions which reflect a less ethnocentric attitude about solutions to social problems.

General Guidelines for Course Design

Results from trial use of early versions of the course suggest that the materials are appropriate under the following circumstances:

(1) student ability and achievement range is in the upper two-thirds of the twelfth grade student population;
(2) students have had no previous formal introduction to economics and have completed a high school social studies curriculum which emphasizes a chronological study of U.S. History and a course in world history or geography;
(3) teachers are those regularly assigned to teach 12th grade government or to 11th or 12th grade business economics courses;
(4) teachers are not necessarily well prepared for or experienced in teaching economics--they have completed at least six units of college economics and an ECON 12 training-orientation program;
(5) class size ranges from 15-40 students or large classes are broken into sections of 15-40 students at least twice a week;
(6) class meets five times per week for 40-50 minutes or classes are organized more flexibly to meet student needs.

Designing appropriate materials for this range of teachers and students meant creating a course structure and strategy which would allow for or offset inadequate teacher preparation, great individual differences in teacher and student abilities, experience and interest in economics; and student and teacher dependence on customary standards of performance and methods of instruction. The project's history is a chronicle of our attempts to satisfy these needs. Through the experience gained in try-outs we gradually developed the following guides for general course development:

(1) The course should help students develop verbal skills.

(2) Course teaching strategies should help students shake off acquired economic misconceptions by giving them the opportunity to explore and react to differences in using their "conventional wisdom" and economic reasoning to solve problems.

(3) Course strategies should try to make use of new discoveries in pedagogy without requiring teachers and students to depart radically from their usual teaching-learning behavior.

(4) The 'guts' of the course--the economic analysis and insights which we hope students will learn--should be contained in a) a summary text which would focus and orient students, and b) programmed instruction modules which would guide student learning of difficult-to-master ideas and skills.

(5) A kind of spiral curriculum design should be employed. The learning of economic analysis should be carefully sequenced to give students all the prerequisite learning they need in order to learn the basic principles included in the course. New learning should reinforce previous learning to permit students to develop a more and more comprehensive understanding of the course organizers.

(6) The course should be designed as a teaching system. The system should provide the necessary structure to permit teachers to organize the course, but it should also be flexible so that teachers can adapt its use to specific classroom conditions.

Rationale

In the upper two-thirds of the high school population there are students with limited verbal skills who cannot develop economic reasoning until they first improve their general verbal abilities. For those students with deficient verbal skills who nevertheless are capable of thinking for themselves, economics training requires learning communication skills. The course should help these students learn to converse and give them practice using all of the verbal skills through the use of appropriate media and teaching strategies.

Economics is generally considered a difficult and sometimes dull or irrelevant subject by students in high school or college. The assumption made in developing ECON 12, and verified in the trial classes, is that students have trouble with economics because they have not developed a useful economics perspective or the necessary thinking and problem-solving skills. Many of these are general skills of logical discourse and are related to the verbal communication abilities discussed above. Some are more peculiar to the methods used in economics, particularly thinking which requires students to use scientific terminology in closely reasoned analysis. The task is made more difficult because, by their senior year in high school, students have had some practical economic experience; they already have an economics vocabulary and have begun to develop a point of view about economic issues. These meanings and opinions often conflict with the perspective given by the discipline, and teaching strategies must be devised to permit students to explore and react to the differences between the "conventional wisdom" and the discipline.

For ECON 12 design is further complicated by the fact that the course is intended for students in their last year of high school. These students have strong opinions about the effectiveness of formal education. They have rather fixed expectancies and may be unwilling to change their habits of study, particularly during their last high school year. The average teacher might agree in principle to the need to change instructional methods to permit students to adopt more autonomous and creative learning styles, but it is hard for the instructor to do this successfully if students are beyond their reach. Although it may be possible to alter teacher behavior, different instructional materials alone probably will not bring about major changes immediately. Thus, course strategies cannot depend on radical departures in teaching methods and materials.

Our experience suggests that lack of training in economics is only a partial explanation for the inability of teachers to design or teach high school economic courses. We assert that the difficulty lies mainly in the inherent problems of economics instruction discussed above and with the lack of acceptable course plans and teaching strategy models due to the fact that a separate course in economics generally has not been a part of the required social studies curriculum. This suggests that course materials must give the necessary structure and instruction to permit relatively inexperienced teachers to develop the skill and confidence to teach an effective course. This is the basis for using a text and programmed instruction modules as the basic parts of the system.

Recognizing that economic reasoning requires students to acquire a rather complicated set of ideas and skills, it is essential to organize learning to give students the time and practice they need to assimilate these new organizers. Furthermore, much of economics learning is cumulative; we build new organizing principles from ones we have already mastered.

Finally, students start an economics course with different degrees of economic understanding and capacities for abstract reasoning. Teachers must find out how much students know and what skills they have already acquired. Then ECON 12 materials should permit the students to start from wherever they are and gradually to develop more complex skills and knowledge. The curriculum is a spiral curriculum in the sense that the learning experiences are organized so that students return again and again to earlier ideas, adding to their previous knowledge to develop a more and more comprehensive understanding of crucial ideas, and more and more powerful problem solving skills.

To be generally effective in high schools and junior colleges throughout the country, course organization and materials must be appropriate for widely different communities and classroom conditions. The enormous heterogeneity in teacher and student ability, interest, experience, and willingness to try new forms of instruction evidenced in trial uses of the course indicated the need for flexible course organization and for sufficient diversity in types of materials to allow teachers to develop a course to fit the needs of their students. It is necessary somehow to provide both course structure and course flexibility. The systems approach to course design seems to offer the answer to this dilemma.

COURSE ORGANIZATION

ECON 12 consists of four units covering traditional economic analysis and policy areas. Unit I provides prerequisite learning for the remaining units--introducing an economics vocabulary, a point of view for conceptualizing economic organization of any society, and some basic tricks of abstract thinking and critical analysis. Each of the remaining units introduces a major area of economic analysis and applies it to basic and controversial issues about economic organization. The units permit students to inquire into perplexing and serious questions about modern society; they learn the discipline "organizers" (economic principles and methods) to help them come to grips with the problems. Diagram I lists the lessons in each Unit and the relation of Unit I to later parts of the course. The following paragraphs sketch the major characteristics of the Units.

Unit I introduces economics as a social science. In it students study the relation of economic activities to the overall organization of societies. They learn to think of an economy as a system of economic organizations performing functions related to the use of scarce resources to satisfy wants and to attenuate conflict. Most lessons employ a similar instructional strategy to permit students to learn to use definitions, quantitative comparisons, model building and some simple procedures for analyzing arguments. Students learn the definitions of discipline concepts through use of programmed instruction, workbook exercises or the text. They analyze or discuss readings to use the concepts and to discover how they are related to each other. In small groups, they use the concepts and relationships to construct models of economic organization. They analyze economic value controversies by learning to identify issues of definition, fact and interpretation. By the end of the unit, students should have acquired a conceptual structure and a simple methodology for interpreting and analyzing economic activity and issues. These organizers permit them to learn the economics in the following units.

Unit II applies microeconomic analysis to study the U.S. market system. In particular, students apply cybernetic systems and long-run equilibrium analysis to compare the competitive structure, conduct and long-run performance of two pure markets (models), pure competition and pure monopoly. They use the insights gained into the operation of markets and the theoretical organizers to study the effect of market operation and government intervention in specific sectors of the economy--in three important industries and on lower income groups. These empirical studies provide the experience base to permit students to analyze conflicting opinions about the performance of U.S. market competition in promoting societal goals of economic freedom, justice, stability, security and progress.

Unit III applies macroeconomic analysis to study the overall growth and stability of the U.S. market system. Students study the U.S. system as a whole--how it generates Gross National Product, the effect of the government and banking sectors on the rate of output and the extent of inflation, the effect of trade with other countries on aggregate demand and the price level. Students learn a simple model of national income determination and they apply the cybernetic systems concept to describe the operation of the whole economy. They learn about the effect of the supply of money on aggregate demand and the function of the Federal Reserve system in controlling the creation of bank money. They use these organizers to study aggregate economic conditions in the U.S. during given periods in the recent past (since 1958) to devise appropriate monetary and fiscal policies for the conditions existing in each case. They consider broader questions about the ability of our economy to be self regulating, the need for and effect of government stabilization and growth policies, the problem of public debt.

DIAGRAM I

ECON 12 Unit Organization

ECON 12 Units are designed around a framework of concepts which help students study economic organization. UNIT I introduces this basic conceptual structure and succeeding units build upon it to permit students to explore basic economic issues of our time.

	UNIT I BASIC CONCEPTS
1	Scarcity Choice, Conflict and Conflict Resolution
2	Organizing Production, Productivity, & Law of Diminishing Returns
3	Exchange, Money & Credit, Saving & Investment
4	Economic Structure of a Society: Modes of Decision Making, Economic Decisions, Economic Goals
5	The Economy as a System (The Circular Flow Model)
6	Economic Conflict & Conflict Resolution; Economic Efficiency and Change
7	Economics, Science and Social Science

	UNIT II Microeconomic THE U.S. MARKET SYSTEM, STRUCTURE OF INSTITUTIONS: THEIR CONDUCT AND PERFORMANCE
1	The Price System
2	Economic Models
3	A Model to Predict Market Price
4	The law of Supply and Demand
5	Pure Competition: Conduct and Long-Run Performance
6	Pure Monopoly: Conduct and Performance
7	Types of Imperfectly Competitive Markets: Structure, Conduct
8	Case Studies & Evaluation of Market Conduct & Performance
9	Income Distribution in the U.S.
10	Programs to Reduce or Alleviate Poverty
11	Labor Market Structure Conduct and Performance
12	American Capitalism: Performance Record and Future Prospects

	UNIT III Macroeconomics
1	Overall Economic Growth and Stability of the U.S. Economy
2	Measuring Economic Aggregates
3	Measuring GNP and GNI
4	The Multiplier. A Model to Predict the Rate of GNP & GNI
5	The Money Supply, Its Effect on Aggregate Demand and Its Regulation
6	Monetary and Fiscal Policy for Growth and Stability
7	The Effects of International Trade on the Economy
8	The Self-Regulatory Power of the U.S. Economy

	UNIT IV OTHER SYSTEMS
1	Growth Strategies and Prospects for Underdeveloped Economies; Case Studies and General Evaluation
2	Russian Economic Planning

THE COURSE ORGANIZERS

A major problem in designing economics instruction is to know how much economics to require students to learn and how to organize this learning. Both the amount and the order of presentation depend on the course objectives and student capacity for abstract thinking.

Generally speaking, two attitudes about economics underlie our choices. The first is our recognition that many important parts of economic analysis are not directly useful to the average person. The second is an acceptance of Bruner's argument for organizing curricula around the structure of the discipline--the powerful conceptual, theoretical and analytic principles of the discipline. Designing learning to permit students to learn the basics of the discipline structure (1) gives students powerful tools of analysis which are generally useful in studying economic behavior; (2) helps students learn and retain other information by providing a basic structure or skeleton of ideas which students can use to organize the rest of their knowledge; (3) helps students relate the economics discipline to other knowledge areas which have similar organizing principles; and (4) increases the probability that what students learn will remain useful during their lifetime.

This point of view required us to subject the discipline to a critical examination to identify a small number of appropriate and generally useful organizers, then to derive teaching-learning strategies which would permit and induce students to learn to use them. We were guided in our choices by our interpretation of general social studies curriculum goals. The social studies apply social science analysis to the general study of society and its problems. From this point of view, it is the area of economic policy which is most closely related to the overall curriculum goals. To study public policies, students must understand enough about the structure and operation of economic organizations and of whole economies to evaluate the extent to which they perform their functions.

The following subsections describe our choices--a conceptual structure for defining economics, two general problem solving methods and a set of theoretical models and classification systems for studying economic organization.

The Conceptual Structure

The conceptual structure used is a system of concepts and generalizations which define what economists study and link the study of economics to the study of society. The conceptual structure provides a viewpoint for perceiving and analyzing all economic issues; thus, all problem solving schemes in the course apply this structure.

Diagrams 2 and 3 give alternative schematic statements of the conceptual structure. Diagram 2 defines economics and economic activity as deriving totally from the scarcity condition--the assertion that for most people, wants are greater than available resources. It shows that all the major concepts in the framework are basic because they help describe the function of the economic system in coping with scarcity.

Diagram 3 shows the same concepts in another way. This diagram is a model describing the dynamics of change by relating the economy to the physical world and society. It shows that change is the result of the interaction of all these "worlds." The circles are the same circumference because they all represent different ways of looking at the same thing--the earth. Change in any one--the physical world, the society, the economy--changes the others. The arrows indicate the primary directions of change.

Problem Solving Methods

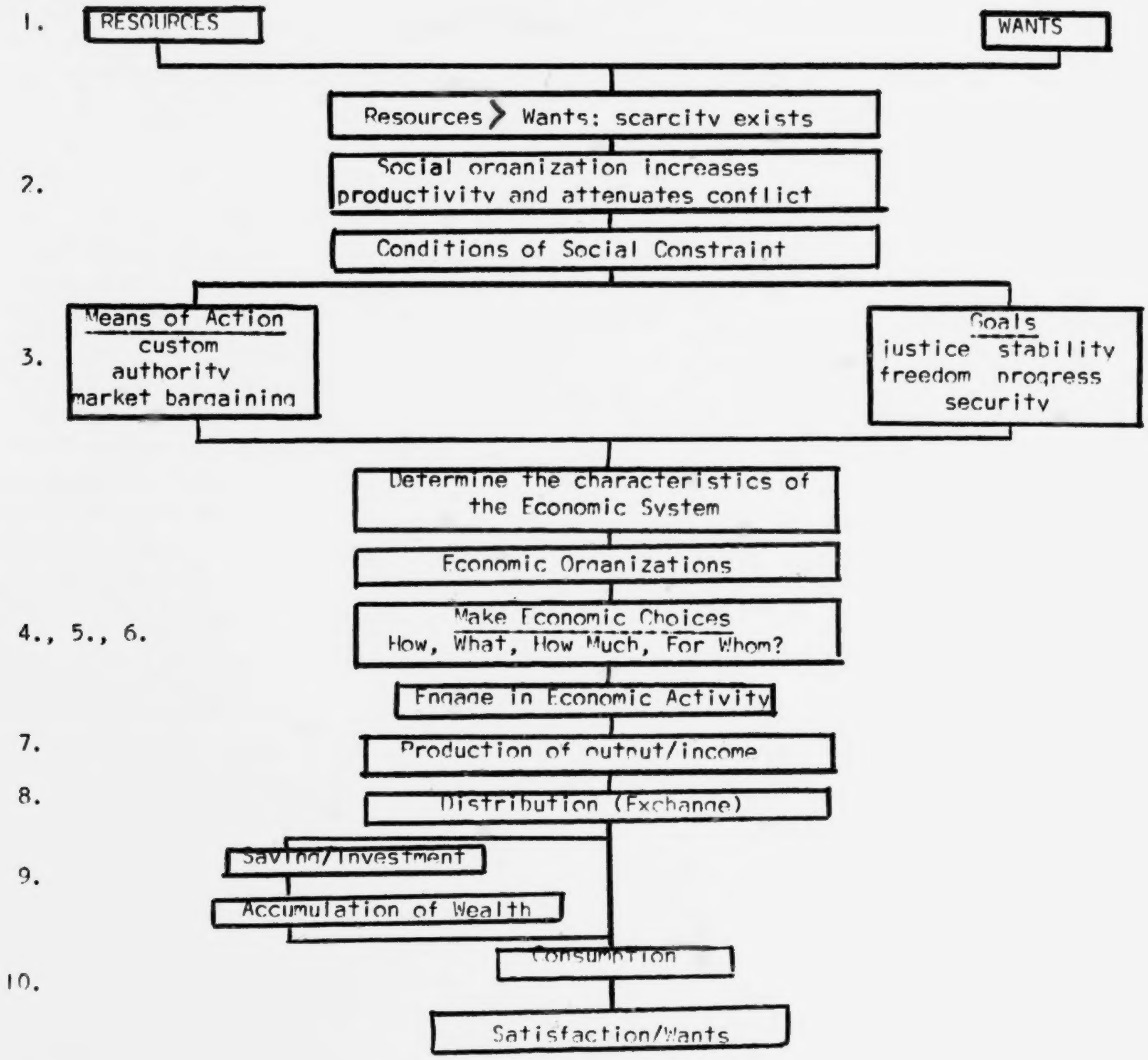
We employ two general problem solving methods. One involves a functional or systems analysis of economic organization and the process of economic decision making; the other is a method of analyzing conflict. Both are necessary to rational decision making.

Functional or systems analysis of economic organization. In ECON 12, the subject matter of economics is seen as the study of an economy or an economic system--the set of interrelated economic organizations which make the basic allocation decisions and carry out the primary economic activities of the society. One can study the total economy (macroeconomics) or specific parts of the system (microeconomics).

The systems analysis approach can be applied to both microeconomics and macroeconomics. It requires students to do the following: (1) Determine the functions of the system or subsystem, stated as standards of performance. (2) Describe

DIAGRAM 2

ECON 12 Conceptual Structure


1.
RESOURCES
WANTS
Resources > Wants: scarcity exists
2.
Social organization increases productivity and attenuates conflict
Conditions of Social Constraint
3.
Means of Action
custom
authority
market bargaining
Goals
justice
stability
freedom
progress
security
Determine the characteristics of the Economic System
Economic Organizations
4., 5., 6.
Make Economic Choices
How, What, How Much, For Whom?
Engage in Economic Activity
7.
Production of output/income
8.
Distribution (Exchange)
9.
Saving/Investment
Accumulation of Wealth
10.
Consumption
Satisfaction/Wants

1. Economics is the science which studies behavior as a relationship between ends (wants) and scarce means (resources) which have alternative uses.

2. The fact that at any one time human wants are greater than available resources creates a condition of scarcity and the need for people to attenuate conflict.

3. The cultural and physical environment establish the constraints within which an economy functions. The forms of decision making (custom, authority, and market bargaining) and the goals of society (the relative importance of justice, freedom, security, and progress) determine the characteristics of an economy.

4. Studying an economy means studying the society's system of economic institutions to determine how effectively the individual institutions perform their function in the system(microeconomics) and how effectively the total economic system (economy) operates to satisfy the people's material wants (macroeconomics).

5. A society's economic institutions are the total group of organizations which perform the economic functions: they make the four basic allocation decisions about the use of scarce resources and; on the basis of these choices, they carry out the primary economic activities.

6. The process of allocating scarce resources involves a normal condition of conflict. Economic organization attenuates and resolves conflicts and in so doing the economic organization changes to reflect the relative power of the contending economic interest groups.

7. Through specialization of production societies make scarce resources more productive. The proof that specialization increases productivity is stated as the theory of comparative advantage and the existence of a limit to the productivity of resources is asserted in the law of diminishing returns.

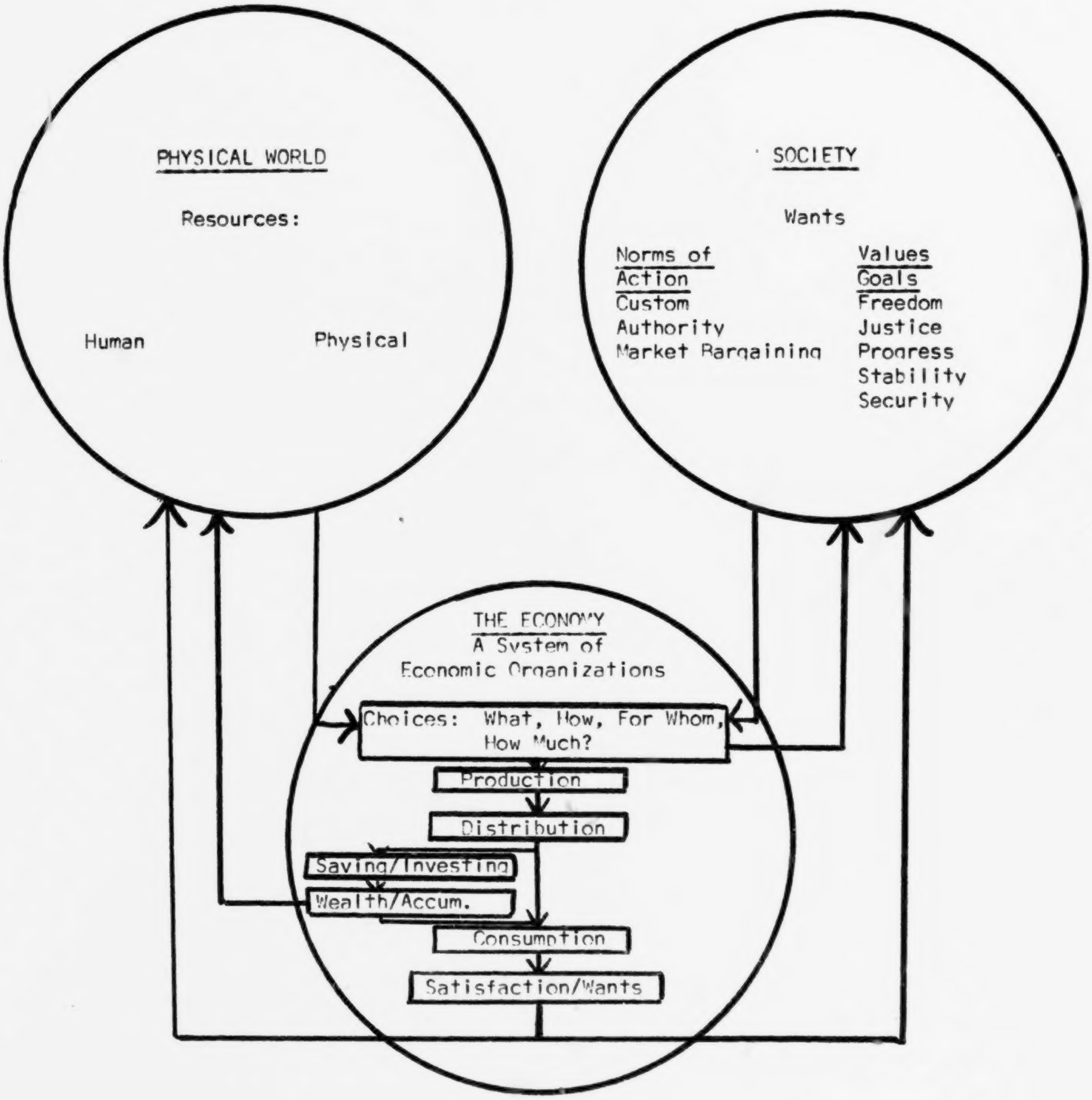
8. Production specialization necessitates distribution and exchange; money is needed to facilitate exchange. The dependence of people on money for purchasing power leads to the creation of forms of credit which further facilitate exchange by expanding people's purchasing power.

9. Through saving and investment a society creates and accumulates wealth (capital) which increases production of want-satisfying goods and services.

10. An economic system changes through a constant process of want satisfaction, want creation, etc.

DIAGRAM 3

The ECON 12 Conceptual Structure
as a Model Explaining Economic
Change


PHYSICAL WORLD
Resources:
Human
Physical
SOCIETY
Wants
Norms of Action
Custom
Authority
Market Bargaining
Values Goals
Freedom
Justice
Progress
Stability
Security
THE ECONOMY
A System of
Economic Organizations
Choices: What, How, For Whom, How Much?
Production
Distribution
Saving/Investing
Wealth/Accum.
Consumption
Satisfaction/Wants

Society establishes norms and values: it defines our wants; it sets forth the abstract justification for those wants in terms of the economic goals of freedom, justice, progress, stability, or security; it determines the modes of decision making (a unique mixture of custom, authority, and market bargaining). The physical world establishes the physical constraints--the amount and quality of human and physical resources. The economy allocates resources and organizes the activities which transform resources into want-satisfying goods and services. The economic system is the mechanism whereby wants and resources change and grow (or decline).

its operation (functioning). (3) Evaluate the performance of the system (the extent to which the organization meets the standards of performance and how efficiently the functions are performed). (4) Suggest reorganization of the system, new decision making policies, if performance does not meet standards.

In Unit I, lesson 4, students use functional analysis to study an economy as a system. Students use the course conceptual structure to devise a model of economic organization which they then try to use to study an economy and to compare two economies. Students relate a society's economic organization to its culture. They compare economies by relating cultural differences to differences in economic organization.

A similar form of functional analysis of specific parts of an economy is employed in the Unit II study of the U.S. Market System. This model is derived from the work in industrial organization by Joe Bain, Richard Caves and others, but it can be generalized to study the structure, conduct, and performance of any kind of market. Essentially, the model is based on the insight that short-run competitive conduct and long-run market performance are dependent on,therefore can be predicted from, the basic competitive structure of the market. From information on the constraints on the market, students can understand the market structure, therefore market conduct, therefore the market performance, therefore the function of, possible need for and probable effectiveness of government intervention.

The emphasis on systems analysis of economic organization permits us to use a related and powerful systems concept to study an economy and its subsystems as if they were cybernetic (self-regulating). Cybernetics is the name given to the emerging science that studies the control mechanism by which organisms, devices, and organizations use information to adjust their operations in order to attain a desired goal. A simple example of a cybernetic system is the familiar home heating system controlled by a thermostat. The thermostat includes a device to measure the heat of the room. When the temperature falls below a selected level, the thermostat turns on the heater. When the temperature is restored to the selected level, the thermostat again takes over and turns off the heater.

Though cybernetic systems may be very complicated, the essential characteristics are quite simple. A system is cybernetic if it has the following four elements: (1) a standard, the goal to be attained by the cybernetic system; (2) a process, the means by which we expect to attain the goal; (3) a measurement, the device or means by which we check our progress toward that goal; (4) a *feedback loop*, the "steering" or "error correcting" portion of the system which feeds back information on the operation of the system to the process to permit the system to correct itself.

In ECON 12 students use the cybernetic system metaphor to study the adjustment process of a market or of an economy to changing supply and demand conditions. This approach is very useful in studying economic policy. Defining a system as cybernetic involves identifying ways it must operate in order to be a self-regulating system for performing a specific function. In studying the actual economic operation and performance of the economic systems or subsystems, students look for evidence of effective forms of automatic self-correction. Any form of economic organization can be considered a system for doing something. The question raised in policy controversies is whether the system is currently a system for doing what society wants. If not, are there effective policies which will change the system to make it perform the desired functions and to regulate itself?

The Jurisprudential Model of Conflict Analysis. Because decisions about personal and public conflicts require students to evaluate polemics and to make value judgments, they must learn a method which permits them to extend rational thinking to this area of decision making. For this purpose, ECON 12 has adapted the *jurisprudential* model of conflict analysis from the curriculum work of Donald Oliver and James Shaver. The objective is to get students to learn to identify and classify the points of dispute in any controversy, in order to clarify the nature of the controversy. They identify all of the subissues as issues of fact, definition, interpretation or prediction, and values. Then they apply what they know about economic analysis to reach agreement on those aspects of the controversy which are amenable to scientific or logical analysis. This paves the way for a final discussion of the value issues and a more reasoned judgment.

The Theoretical Structure

Each ECON 12 unit introduces an interrelated body of theoretical principles which students apply to the unit problems in economic organization.

Finding the essence of economic theory proved to be a major intellectual and emotional challenge. No economist can treat lightly the prospect of shelving revered theoretical contructs and pedagogical methods which have stood the test of time, if not of student endurance. Though the task was dismal, the completed course shows that we were able to eliminate much theory on the grounds that students never use it. Secondly, we identified and eschewed aspects of our pedagogy which we found to inhibit rather than induce learning for most students.

We have not as yet developed a simple description of these organizers and their relation to each other. However, the content and strategy are suggested by the table of contents of the Units II and III workbooks, which contain the sequence of programs and exercises students complete in order to learn the theory. These tables are reproduced below, followed by a summary of the major deviations from traditional college principles courses.

ECON 12
Unit II Workbook

Table of Contents

- Lesson 1: The Price System
    - Exercise 1: Adam Smith's Invisible Hand
    - Program 1: Defining Markets
    - Program 2: Cybernetic Systems

- Lesson 2: Economic Models
    - Program 3: Models

- Lesson 3: A Model to Predict Market Price
    - Program 4: Defining Market Demand
    - Program 5: Line Graphs
    - Program 6: Defining Market Supply
    - Program 7: Price Determination
    - Exercise 2: Summary Questions on Markets and Price Determination

- Lesson 4: The Law of Supply and Demand
    - Program 8: Demand Conditions
    - Program 9: Supply Conditions
    - Program 10: Law of Supply and Demand
    - Exercise 3: Summary Questions on Demand and Supply Conditions and the Law of Supply and Demand
    - Exercise 4: Practical Applications of Supply Demand Curve Analysis

Lesson 5: Pure Competition: Conduct and Long-Run Performance
- Exercise 5: Long-Run Effects of Perfect Competition on Resource Allocation
- Exercise 6: Evaluating Perfect Competition

Lesson 6: Pure Monopoly: Conduct and Performance
- Program 11: Price Elasticity of Demand
- Exercise 7: Price Elasticity of Demand: Summary Questions and Practical Applications
- Exercise 8: Market Conduct in Perfect Monopoly
- Exercise 9: Comparison of Perfect Competition and Perfect Monopoly

Lesson 7: Types of Imperfectly Competitive Markets: Structure
- Program 12: Market Structure and Types of Imperfectly Competitive Markets

Lesson 8: Case Studies and Evaluation of Market Conduct and Performance
- Exercise 10: Worksheets for Industry Case Studies

Lesson 9: Income Distribution in the U.S.
- Exercise 11: Analyzing Statistical Tables
- Exercise 12: Describing the Distribution of Income in the U.S.
- Exercise 13: The Degree of Inequality of Income Distribution

ECON 12
Unit III Workbook

Table of Contents

Lesson 1: Overall Economic Growth & Stability of the U.S. Economy
- No Exercises or Programs

Lesson 2: Measuring Economic Aggregates
- Program 1: Errors in Measurement of Economic Variables
- Program 2: Operational Definitions
- Program 3: Index Numbers: Measuring Price Levels and Real Economic Activity

Lesson 3: Measuring GNP and GNI
- Program 4: A Balancing Act: GNP = GNI
- Program 5: The Components of GNP and GNI
- Program 6: GNI Available for Spending by Consumers, Investors, and the Government

Lesson 4: The Multiplier. A Model to Predict the Rate of GNP and GNI

Program 7: Aggregate Supply Adjusts to Aggregate Demand
Program 8: Determinants of Consumer Demand and the Multiplier
Program 9: Factors Affecting I, G and E
Program 10: A Model to Predict Changes in the Rate of GNP (optional)
Exercise 1: Problems in Predicting the Level of and Changes in GNP

Lesson 5: The Money Supply, Its Effect on Aggregate Demand and its Regulation

Exercise 2: The Quantity Theory of Money
Exercise 3: Expansion of Money by Banks
Exercise 4: Federal Reserve Controls

Lesson 6: Monetary and Fiscal Policy for Growth and Stability

Exercise 5: Designing Counter-Cyclical Strategies

Lesson 7: The Effects of International Trade on the Economy

Exercise 6: Balance of Payments

In Unit II we limit the discussion of price theory to analysis that can be carried out with market or individual firm demand and supply curves. This means that there are no marginal cost-marginal revenue curve proofs of the short-run equilibrium conditions in pure competition and pure monopoly. The theory we present describes competitive and monopoly markets, the long-run responsiveness of output and costs to changing demand and supply conditions in the two models. Central in this analysis is student use of the price elasticity concept to explain a firm's ability to set price.

The theoretical analysis of pure market models is prerequisite to student inquiry into the actual operation and performance of firms in three industries--automobile manufacture, primary and fabricated aluminum products and telephone manufacture and service. We guide students through an analysis and comparison of market conduct and performance in the two pure market forms to establish a procedure, terminology and benchmarks for comparison for students to use in the case studies. In the industry studies, students use organizing concepts and methods of industry classification taken from industry organization studies to predict industry conduct and performance. Then they generalize from this experience, in effect, creating their own oligopoly theory.

The Unit II theory lessons are preceded with a lesson on scientific use of idealized models. Although students are introduced to model building in Unit I, a special strategy seems necessary to convince them that idealized market models are useful in studying real markets. We raise the issue directly before we start to use market models and, hopefully, convince students of their value. In succeeding lessons we constantly remind students when they are working with models (abstractions) rather than with real markets.

In addition, we have found it essential to prepare students to use line graphs and to give them adequate practice using line graph market models in practical applications. Therefore, we have included a program in which students practice using the characteristics of a line graph to describe functional relations. They learn to identify the major characteristics of a curve, then to apply this to a description of the function this curve describes.

In the Unit III treatment of National Income theory, we have eliminated analysis of various kinds of consumption and saving functions &the accelerator and the use of graphic and tabular presentations of the national income model. Students predict the rate of GNP and changes in the rate using the multiplier. As an option, advanced students can make the same predictions using the familiar two eqution models: $Y = C + I + G + E$; and $C = a + bY$.

Students complete three programs defining GNP, GNI and their components. This sequence includes a program classifying GNI into gross business saving, net taxes and disposable personal income--categories of income available to the three major spending groups for spending on consumption, investment, and government purchases. Given these identities from national income statistics, we use three major organizing ideas to present and use the national income model. First, aggregate supply adjusts to aggregate demand (we use cybernetics to explain why). Second, in order to generate GNP at a constant rate it is necessary for income earners to buy back GNP at the same rate in which it is produced. Third, because consumption spending is a stable function of GNP and, in turn, GNP is dependent on consumption spending, any increase or decrease in the remaining three components of aggregate demand produces a predictable multiplier effect on the rate of GNP and consumption spending. Students then learn to apply the model to study fiscal policy alternatives by predicting the effect on GNP of changes in G, I, E, gross business saving, net taxes components, disposable personal income.

COURSE TEACHING STRATEGY AND RATIONALE

A major problem to overcome in developing an economics curriculum (perhaps any curriculum) is to motivate students to learn--to make the course of study relevant. Although it is tautological that a subject is relevant if the ideas, activities and issues taken up are of value to the student, it is hard to relate economic analysis to the activities and questions which are important to high school student. The result? For most students learning economics is boring, difficult and irrelevant.

In developing ECON 12, we have made two assumptions about student motivation: they learn things they can recognize as important for them to learn: and they learn things they can learn. These assumptions have led us to design the course around student exploration of their personal economic values through the study of very basic public policy questions in economics. Students learn economic analysis in order to deal more intelligently with value questions which interest them. In addition, the course materials and strategy make it possible and passably interesting for most students to learn the necessary economics. The course provides models of analysis which the students can use and which they recognize as more powerful than their own methods.

A Suggested General Strategy

The following general strategy illustrates one way the Units II, III, and IV course materials can be used.

1. From readings, lectures or some other media, students become acquainted with major controversies in the area to be studied. For instance, to introduce macroeconomics a teacher may have students read an article from a weekly news magazine on the economic outlook for the current quarter, also differing opinions of politicians or economists about the ability of our economy to maintain continued economic growth and stability.

2. Students "mess around" with the information in an effort to state the issues precisely and to identify what they need to know in order to study them.

3. The teacher provides end of unit behavioral objectives or goals for students to work toward. These objectives will differ from class to class, depending on student ability, but the following objectives illustrate one possible direction. Given data on the current operation of the economy, students can give and justify appropriate

monetary and fiscal policies; and/or, given opposing arguments about the ability of our economy to regulate itself free from different kinds of government action, students can identify the differences in assumptions made by the adversaries and can justify their own opinion about the controversy.

4. Using course materials and a combination of strategies including programmed instruction, individual and group exercise sessions, question and answer periods, class or small group discussion, written assignments, the instructor programs class and homework activities so that the students learn the economics principles and models of analysis which will permit them to achieve the unit objectives.

5. As students learn the basic principles, they start applying them immediately to parts of the issues they have picked out to explore in the unit, so that by the end of the unit students are back analyzing the original issues, but with new capabilities. The teacher must be careful, however, to give students the necessary experience which will permit them to achieve the unit objectives.

6. The final analysis of the issues can take the form of group discussion, debate or a written assignment.

7. To minimize student concern about grades, at the same time safeguarding teacher concerns about maintaining standards, we recommend that teachers guarantee students a "C" if they correctly answer 65% of the course examination questions. These examinations test learning of the programmed instruction, which in turn tutors students to pass the examinations. Because the programs are designed so that most students meet a required performance standard, almost anyone who wants to can get a "C" in the course. We recommend that when students are studying the public policy issues, they be encouraged to work in groups and to receive a group grade. This increases student participation and student autonomy from the teacher. In addition, the groups can help slower students learn and take initiative.

This strategy is directly related to two current curriculum issues: how to integrate the affective domain (value learning) into the social studies cirriculum, and the relative merits of inquiry learning and programmed instruction.

In ECON 12 we try to tie together affective and cognitive learning. If students are motivated to learn economics discipline skills as part of their inquiry into current social organization, student achievement of cognitive learning objectives reflects achievement of affective objectives as well. Students are beginning to value economics. If it is true that students learn what they want to learn--what is valuable to them--then the cognitive and affective domains cannot be separated except in theory. Curriculum designers can strengthen both kinds of learning by setting up experiences in which students are involved in both cognitive and affective learning.

In addition the strategy integrates two seemingly noncongenial instructional styles--inquiry learning and programmed instruction. The general course strategy is an inquiry strategy. We set up encounters which encourage students to explore economic organization and economic controversy. These encounters introduce students to conflicting or confusing information on the effectiveness of economic organization, information which students cannot explain with their present knowledge. To study the problem they need to find organizing principles and methods. Economics supplies these organizers, but they are relatively complicated and it takes practice to learn the methods of analysis. To make this learning easy or possible, we use programmed instuction modules or exercises which sequence learning, require active student participation, provide constant feedback and generally prepare students to achieve specified behavioral objectives. Inquiring students soon learn that they can use these organizers. Furthermore, they know they are guaranteed a passing grade if they learn them. Thus, programmed instruction becomes part of the inquiry strategy.

Lesson Design

ECON 12 makes the inquiry strategy described above possible and teacher training programs under our direction will be organized to encourage teachers to so use the materials. However, the materials do not have to be used this way. In fact, the lessons are designed carefully and sequenced so that when teachers follow the suggested order, the course becomes teacher directed and didactic in its overall pedagogical characteristic. Unless teachers have attended an ECON 12 Institute or have taught the course at least once, they should stick fairly closely to one of many suggested ordered uses of the lessons. As teachers become adept with the materials, the inquiry nature of the course can become progressively dominant.

Lessons are designed as part of the ECON 12 teaching system. As used here, the term means all of the human and nonhuman components which interact to perform the system function: to allow students to meet the course learning performance criteria. This approach to designing lessons is an extension of the procedures of programmed instruction to design a course which uses a variety of media and learning situations and in which a teacher is the system executive. The deliberate use of programmed instruction design techniques was an attempt to assure that the course would emphasize student achievement as the goal of instruction. The lessons have the following characteristics:

1. Course and lesson objectives are stated in behavioral terms; that is, they specify expected levels of observable student performance which are measurable through testing or observation.

2. Within lessons learning is divided into relatively small increments or learning experiences.

3. Students are required to participate actively in the learning process--through group discussions or problem-solving exercises, through completing programmed instruction, or through written work.

4. The emphasis on diagnosing student progress through continuous objective observation and analysis of student class and test behavior provides teachers and students with the essential "feedback" through which they readjust the learning situation when results fall short of what is desired.

5. There is an integrated set of teaching materials and strategies which help carry out the purposes of the course learning experiences. Each system component has specific functions. Alternative materials and strategies permit the students and the instructor to choose the learning situation they want, or to try another approach if the first approach does not bring about the required learning.

6. Within lessons, teachers are free to use course materials in any way as long as they organize learning to help students achieve the lesson objectives.

General Teaching Guides

It is important to emphasize that, although ECON 12 Units and the lesson materials within Units are carefully designed as part of a total system, there is no one way to use the materials. In an ECON 12 course, the teacher functions primarily as the system executive, not just as a dispenser of knowledge. As the executive, it is the teacher's responsibility to organize a successful course--one in which students achieve the course objectives. Teachers must learn how to diagnose student learning and interests to adapt the course to their specific group of students. This will mean altering learning objectives, choosing encounters and subjects of study which interest the students, helping students learn the course organizers, providing a learning environment which permits students to inquire freely into the use of the organizers in analyzing course problems.

Most teachers will have to learn how to use ECON 12 materials; we hope that this learning process will be interesting, if not always enjoyable. This section gives general guides for the use of the materials.

First and most important, teachers should acquaint themselves with the nature of the course before they decide to use it. They should feel good about trying it, even if not sure about how well some of the ideas will work out. We hope that teachers will start their experiment with an open and inquiring mind. If they are skeptical about the general value of our approach, they probably should be using some other materials, because this skepticism combined with the normal problems one encounters in using new kinds of materials and strategies may add up to a distrubing semester.

Almost as important, achieving the course potential depends on making use of it to capture student interest in economics. To do this teachers must know where the students are in their economics knowledge and reasoning powers. The teachers must listen to students to find out what to study and how to help students learn difficult concepts and skills.

A common problem in using ECON 12 materials is to overcome student anxieties about how different the course is. In particular, if inductive learning or inquiry strategies are used, the course may seem disorganized. Students will not know where they are going. The use of programs and the fact that the text is not the main source for learning course organizers also contributes to this feeling. Students are using different kinds of materials and it is not always clear how all of the learning experiences are related. We try to reduce student anxiety by clearly stating the purpose of programs and class exercises, statements which describe how the new knowledge will be used. Also, the text provides orientation; but finally, it is important for the teacher to provide the mortar which cements learning experiences and gives students a sense of intellectual growth and accomplishment.

Another serious problem using ECON 12 materials is timing and pacing. Because there are optional materials for each lesson, it is possible to get bogged down in early lessons and never get to the later lessons which challenge the students to study economic problems. Again, the teacher must learn to judge student abilities and interests so that he can keep the learning experiences vital and assure that students will get involved with some of the major issues brought up in the course materials.

Finally, there is a problem of designing class experiences to provide a variety of learning situations. Even the most exciting teaching strategy gets dull if overworked. ECON 12 materials provide materials for lots of different kinds of classes, but the teacher must be sensitive to the need for new and different experiences. Careful planning is especially important in using the programmed instruction in Units II and III. There, fairly extensive doses of programming are used to introduce price and national income theory. The teacher should interrupt programmed instruction assignments to give students time to assimilate and use the new knowledge.

COURSE MATERIALS

The Text

The text is a short summary of the course organizers intended to orient teachers and students. It can be used to introduce or to summarize class learning, or whenever students want to be reassured about where they are going and why.

Correlated Readings

Readings are included for each lesson in the text. They provide encounters for inquiry learning experiences, resource information for case studies, supplementary reading for independent study. They include historical essays, news stories, polemics, speeches, scholarly works, excerpts from texts, court rulings, excerpts from Federal laws, factual descriptions, impressionistic essays, etc.

Generally speaking, teachers should treat the readings as illustrative of the kind of reading that they can use for course encounters. Except as noted below, teachers should subsitute freely more appropriate readings, particularly if those in ECON 12 seem too difficult or abstract. The exceptions are the readings prepared especially for the course which provide the data base for course case studies. These essays are constructed to provide data without analysis, so that students can do their own generalizing. These essays should not be substituted for unless a legitimate alternative is available.

The Statistical Abstract

The statistical abstract, included at the back of the student text, provides most of the general historical times series data needed for course problems and student browsing.

Programmed Instruction

Twenty-eight short programmed instruction sequences are included in a student workbook to tutor students in their learning of the meaning and use of the basic discipline organizers used in the course. Programs are used because we consider them an ideal way for students to learn difficult-to-acquire information and skills. Programs give students success and reassure them that they can learn the material; they leave more class time for other kinds of learning; they bring student performance up to a minimum standard; and they relieve the teacher of the burden of organizing this learning.

Our programming strategy evolved over a three year period of trial and error. The final style does not conform to formal rules for constructing linear or branching programs. The programs are designed to permit students to meet specified behavioral objectives which are stated in the criterion test at the end of the program. The programs are linear in the sense that we make little use of branching. However steps are larger than the usual linear frames and we reduced program length by minimizing the use of repetition. Each program was tested and revised at least twice on groups of students ranging from fifteen to seventy, and frames were changed if even one student answered incorrectly.

Because the same programs are used with all students, they will be more-or-less appropriate for different groups. The target student population we tried to satisfy was the middle two-thirds. These students probably need the programs to learn the subject and should be able to complete them without help. Most of the upper sixth of the student population can, perhaps, learn the subject-matter directly from the text, bypassing the programs; however, the programs should benefit even them.

Nonprogrammed Exercises in the Workbook

Nonprogrammed exercises are also included in the student workbook. These are useful for individual or group work. Some are designed as inductive learning experiences; they are the basis for rather formal group analysis of a problem. They ask a series of questions and students (preferably in small groups) try to answer them in sequence. If the students explore the questions and answers they start to see ambiguities in their "answers" and this experience should expand their understanding of the subject being inquired into. The questions are included in the workbook so that students can summarize the answers there and keep a record of the discussion.

Some exercises are designed for use with case studies. They are included to focus student work and to standardize data collecting procedures so that the studies can be compared in the succeeding class discussion. Finally some exercises are really self administered lesson criterion tests, included at the end of the lesson for class review.

Audio-Visual Aids

Ideally, media should be chosen which create the kind of experience required for the learning situation. If the idea or desired encounter is basically visual, then pictures or film clips communicate faster and more accurately than does a translation of the visual encounter into written words. If one accepts this view, then whenever practical, instructional materials should provide the appropriate encounter, the most effective communication. Movies, pictures, overhead transparencies, diagrams, charts, audio tapes, physical objects, direct experience should be substituted for written text. Defining media very broadly, anything which provides an educational experience--field trips, class debates or discussions, lectures, etc.--are media and teachers should make use of all of them when appropriate.

Using different educational media also provides a change in pace; it breaks up the tedium and routine of five classes a week, giving both students and the teacher a break. Finally, a multimedia approach helps the teacher tailor instruction to student needs. Some students are visually oriented; most of them have become fairly sophisticated viewers in this ara of television. Students are tuned into the pop culture which is visual and auditory and we can make use of this awareness in designing encounters.

ECON 12's visual media have many uses. Course strategy requires students to use, interpret, and create diagramatic models, graphs, and tables of data. The diagrams and tabular and graphic presentation of data are included in the text and in overhead transparancies for class use. Models such as the want-satisfaction chain and the circular flow diagram are representations of economic relationships which provide a visual image for an otherwise abstract idea, thereby making the abstraction concrete for the student. Students learn to use diagramming as a tool of analysis when they try to draw flow diagrams describing various kinds of economic activities as a cybernetic system. Line graphs and tables summarize the relationships between two or more economic variables; they are particularly useful in examining relationships over time. Overhead transparencies, with overlays, permit students to dissect the information shown on one table or diagram.

The text includes photographic essays, a device which adds aesthetically to the text and provides visual information for learning experiences. They can be used as the initial encounter in an inductive learning experience in which students try to make inferences from the series of photographs.

Three films were developed on the project, each serving a slightly different function. "Production," a six-minute color, sound film is a narrated photographic essay giving a visual history of the development of specialization from the domestication of plants and animals to modern day cybernated-automatic production. The intention was to bring together diverse and aesthetically appealing pictures of specialization to add to the student's experience and to emphasize the importance of this crucial concept in economics.

"The Circular Flow Model" is a four-minute single-concept, silent, color film. It puts into motion the familiar circular flow diagram, showing the transformation of inputs and outputs resulting in the continuous flow of goods and services between firms and families, and the corresponding flow of money payments for these goods and services flowing in the opposite direction. By the use of counters attached to the flow of money, the film shows the sum of money income to families and firms, thereby introducing the concept of gross national product and gross national income as rates per period of time. This dynamic visualization makes it easy for students to differentiate between stocks and flows--wealth and income--and their differences in measurement.

"Model Man" is an eighteen-minute, sound and color film introducing students to the importance of abstraction and model building to scientific work--and the essential similarity of purpose between scientific abstraction (model building) and that used in everyday life. A film was chosen for two reasons. First, the concept of abstraction is basically visual. One can illustrate the process by taking away more and more of the detail of an encounter, then finally substituting the original experience with a symbol or word. Secondly, it is essential to convince students of the importance and relevance of using models of reality to explain, predict, or idealize some object of scientific investigation. Many students are unwilling to study economic theory because it is unrealistic, therefore useless and impractical. It can't do anything, so why study it? The film was designed to illustrate through many, many familiar and unfamiliar examples how important model building is and how students are used to using certain kinds of models such as football play, diagrams and dress patterns. This film is used in conjunction with a program to prepare students to use economic theory.

The Instructional Guide

The instructional guide is the course systems manual. It is the primary reference to course structure, objectives, and strategies. It describes the teaching system and guides the instructor in organizing an economics course appropriate for his classes. It contains introductory essays giving this general orientation on the rationale of the course and the characteristics of the teaching system and its components. The remainder of the book guides the use of course units and lessons. For each unit there is a short statement of unit objectives and rationale. The individual lesson guides begin with a statement of the lesson rationale--what the major lesson objectives are and their relation to other lessons. A summary chart lists the concepts, theories or problem solving models to be used; the major ideas; the behavioral objectives; and the available materials. There is a bibliography of teaching and reference materials. The function and possible organization of learning experiences are also given.

Unit and Final Examination Questions

Unit and final examination questions are provided which test the course behavioral objectives; these questions include objective questions, essays and problems.

CHAPTER V
CONCLUSION

Original Objectives

In 1964 the U.S. Office of Education Contract Officer first visited San Jose State for an on-site visit to determine the feasibility of making the original research award which created the ECON 12 Project. The contract office was quite candid and informed the principal investigators that the panel, which approved the proposal, considered the problem of creating a really successful 12th grade economics course, for use with all ability levels, practically insoluble. "They would," the officer said, "be surprised if we had gotten much beyond the delineation of the problem by the termination date [1966] of the research grant."

The members of the panel were absolutely correct. Two years later, by June, 1966, we were beginning to delineate the problem. By June, 1968, two years beyond Office of Education funding, the project will be completed. By some, as yet only dimly perceived logic, almost all of the original objectives of the project have been achieved. There were many times, throughout the course of the project, when the original objectives gave way to new objectives, but in most instances the project managed to traverse a full circle back to its original objectives. The record of this achievement is set forth on pp. 7-9, above.

Curriculum Design Model

In addition, the project developed a systems design model for curriculum development which would, of course, greatly shorten the time for completing any similar design project.

We would make use of the design model for any future projects but we would make several substantial changes in the kind of personnel and in the administration of the project. This particularly applies to the involvement of teachers in the project. Instead of using a fairly large number of teachers who are expected to aid both in developing and evaluating materials, we would work with only a small group of teachers until materials development was fairly well advanced. The disadvantages of using a large group of teachers are substantial:

1. Only a few of the group will have talent for curriculum development.

2. Interpersonal conflict is more likely.

3. Coordination of effort is more difficult.

4. The student test population is so large that reproduction and distribution of materials is complex, costly, and time consuming.

5. The larger the number of students, teachers and schools involved, the greater the need for a public relations program.

Perhaps the best way to develop a curriculum is to do it in obscurity. A small group of professional curriculum experts, working with a few talented teachers, is probably the most efficient mode of operation. In the social studies, two people drawn from the discipline, and trained in curriculum, working with three or four teachers would be an ideal design team. Such a group, if it has the blessings of the school administrators and a back-up team of writers, can be efficient. It can avoid its own administrative rigidities, and it can remain flexible and able to respond to new discoveries about the educational needs of the society. If it does operate in this way, it is more likely to produce a product that is truly current.

There is another value in a small intimate group. It is aware of its own dynamic processes and it can chronicle the record of the behavioral changes of the group itself and the individuals within the group. Being sensitive to its own behavioral changes, it is more likely to design a curriculum which is relevant to student interests and needs--one which turns the students on and gets them involved. Turned-on curriculum developers must always remain aware of what things turn them on--a challenging problem, freedom to experiment, the respect of one's colleagues for one's own cognitive style, a sense of social usefulness. Any curriculum which can give the students the same set of gratifications cannot fail.

Need for a Flexible Curriculum

The need for a flexible curriculum arises from the increasing speed of social change. The various cultural, political, and moral revolutions now sweeping American society require a new change of pace in our curriculum if it is to remain relevant to the student and to the needs of the society. A social studies curriculum for use in the black ghetto, which was based on the ideas and attitudes prevalent in 1964, would probably be either irrelevant or unacceptable to the black community today. For example, two years ago, we included the school desegregation decisions of the Supreme Court, and "A Letter from a Birmingham Jail," as readings on the black-white conflict. The revolts which devastated the ghettos of Detroit and Los Angeles give these documents an antique quality. Rapp Brown, Stokley Carmichael and the Black Panthers have redefined the conflict.

Thus, the speed of social change not only makes flexibility in social studies curriculum development necessary, it also requires a flexible product. If a curriculum is based upon rigid learning sequences imbedded in inflexibly packaged materials, it is not likely to have a long life. Learning sequences must be placed in modules which can be used as class needs warrant. Insofar as is possible, the materials should not date easily.

This is, as mentioned above, especially important in choosing readings. Readings, which are likely to date quickly, should be kept to a minimum and the teacher's guide should contain a clear statement of the pedagogical use of each reading so that teachers are able to find relevant substitute readings. If possible, of course, the students should be the ones who find the relevant readings--just the fact that students have chosen them helps to make them relevant.

The Student Centered Curriculum

When beginning a task in curriculum design, one must ask several basic questions--"What is education?" "Who is it for--the learner, the society, the deity?" "What behavioral changes are desired in the learner?" "How does one communicate with and motivate the learner?" "How does one evaluate the curriculum?"

Whatever the answers are, it is clear that the learner is the focus of all of the questions and, to be successful, any curriculum must be student centered. If this is a valid conclusion, then the question of the nature of the learner is central to the curriculum development process.

In 1964 Kitty Genovese was stabbed 15 times in her own doorway in Queens while 28 neighbors saw and heard her screams but did nothing--they did not run to her aid, they did not call for help, they did not even bother to call the police. In 1968, Teenage Rock Stations played a groovy side which began--"Look outside the window there's a woman being grabbed, he's got her in the bushes and now she's being stabbed. Maybe we should call the cops or try to stop the pain, but Monopoly is so much fun and I'd hate to blow the game. And it probably wouldn't interest anybody ouside of a small circle ot friends."

This is the song of the alienated ones and they, together with the new high school activists, dominate the intellectual and social scenes at most urban high schools. Both groups are practically impervious to establishment exhortations to study, to work hard, and to be good students. Being no longer intellectually docile, they will not perform well unless persuaded that the work they do has meaning for them. A curriculum which carries no conviction for the students is of no practical value.

This change in the sociology of the high school should be looked upon as a great improvement over the social-centricism which James Coleman described in The Adolescent Society, published in 1961. The high school student leaders are now seriously engaged in establishing a viable relationship between the society of the high school and the larger society. In doing this, these youths have opened up intellectual and moral possibilities to the curriculum developer, and to the teacher, which were non-existent two years ago.

This improvement in the general learning climate has given another pedagogical advantage which is often overlooked. It has created an environment which enables the disadvantaged learner to enter the society and to have a real motivation for learning. The total burden of failure need no longer rest on the student who has compiled a record of failure. Avenues of effective action are now open to him both within and beyond the school. The action programs in student organizations and in community organizations are a magnificent means for the disadvantaged youth to find his intelligence.

As we broaden the range of behaviors which we find acceptable as indicators of intelligence, we are finding that a larger and larger percentage of our students are intelligent. We are actually changing the definition of learning and of intelligence--obviously a curriculum must be focused on the student if it is to survive in the volatile high schools of the next decade.

When we speak of student centered, we do not mean centered on the unique individual--the flower child of the Renaissance--rather we must center on those social groupings which high school students find important. The curriculum developer and the classroom teacher both need to recognize the small group as a viable learning unit. This does not mean that the individual is to be ignored. Students who have particular learning problems or who work best alone should be handled individually. What is called for in our high schools today is the acceptance of small group activity as the norm rather than the exception. Our curriculum should be designed on this basis, our teachers trained in the use of small group techniques and our high schools built to accommodate and encourage small group activity. Teenagers live most of their lives within the context of small groups and from them they draw their emotional sustenance, their values, and their strategies for meeting life. This phenomenon is what McLuhan calls the new tribalism. It is the social force which will certainly remove many of the controls administrators and teachers now exercise over high school society, but it holds more advantages than disadvantages for the pedagog who believes in creating autonomous learners.

The curriculum developer must rid his mind of the set of 35 individual student sitting in a rectangular classroom for 50 minutes, five days per week, thirty-six weeks per year. If he designs for these parameters, he is doomed to failure because these are the conditions which create dropouts or automatons who burst into life ten minutes out of each school hour and from 3 p.m. to 8 a.m., plus weekends, holidays, and summer vacations.

What exists as an educable human population are 35 students, most of whom are deeply involved in, or want to be involved in, group action. The curriculum must not only allow such group action, it must encourage it. It should encourage human encounters between students so that the class becomes a self-conscious social entity. Only then can the teacher have authentic human relations with the students and find out what their real needs are.

A student-centered curriculum is also necessary in order to insure that a curriculum will be flexible in reality as well as in rhetoric. Every discipline has valuable, organized knowledge, but we must never forget that every discipline is also an intellectual history of the men who created it. The discipline is always a product of the past which must be translated into forms useful in the present and the future. All such translations begin with the definition of the problem and here is where the student becomes indispensable to the curriculum.

No teacher can define what the students problems are. The students are the ones who see the world as it is for their generation. The teacher must find out what students see and help them articulate their problems--then provide them with the organized knowledge they need to find answers.

When the organized knowledge is conceived of as a derivative of real problems--as it is in the real world--pedagogy takes on a new face. The teacher and the curriculum must be able to respond to student needs. Learning sequences must be designed for the tasks at hand and that means the curriculum must be so flexible (and well articulated) that the teacher can choose any one of multiple sequences and they will all be valid.

The Student as an Autonomous Learner.

One of the most serious impediments to the involvement of students in relevant intellectual tasks is the dissonance created by grades. As Arthur Perls has commented, "Education is the only industry which flunks its product," and human products react badly to being stamped second rate. Grades are symbols of teacher authority which usually have little relationship to student achievement and every major study of the relationship between students' grades in college and adult achievement show either no correlation or an insignificant positive correlation. Surely, high school grades could not be much better indicators of student potential.

Grades, for most students operate as negative motivators. They create an artificial incentive system which destroys natural motivation and incentive--desire for closure, curiosity, seeking intellectual power. If we want to turn students on to intellectual life we must destroy the grades game and create a learning environment which is free and which excites students to learning and thinking.

The grades game is particularly harmful to the culturally or neurologically handicapped student because it is a game he cannot win. The rules are set to reward competences he does not have and he naturally refuses to play. He simply drops out.

If every adult pedagog would simply examine the complex and varied competences which are required for each of his own working days, he would perceive that the evaluation methods upon which grades are based are thin and narrow indeed. The student is not being measured and graded on his ability to function in a complex life situation which requires all of his talents. Rather he is being graded on a narrowly defined knowledge, skill, or cognitive task which is out of real life context, a task in which the relevance is often obscure.

One of the major tasks of the new pedagogy is to involve the student in the learning process by creating situations which require a broad spectrum of his competences. A learning situation which tends toward the complexity of the real world allows more varied responses and solutions to the problems posed. Such a situation is not a close-ended grade game. Instead, it is an open-ended game which can, if properly handled, call forth the various creative talents of most of the students in the class. It is a game in which the students help make the rules and in which the rules change with every game; that is, it is like life.

One of the ways we can move toward this social conception of the classroom learning situation is to assign group grades rather than individual grades. The class is divided into small groups and these groups are given the responsibility for solving some particular problem. The group is then free to organize the talents of its members as it chooses. Another possibility is for the teacher and students to negotiate a contract for the work to be done and the method of evaluation. Such contracts can be negotiated by individual students or by groups.

Summary

We can conclude by saying that the four years of the ECON 12 project have convinced us of the need for a curriculum which is soundly based on a disciplinary structure so that it can be applied flexibly without losing its logical coherence. The materials should provide the means for learning the basic organizers of the subject; they should also provide a wide range of encounters of potential interest to the student. The course materials should be used with student centered instructional techniques which demand use of a broad spectrum of student competences, and group activities should be encouraged.

The curriculum and the teacher must require standards of competence in the use of the basic organizers but the students should be allowed to control the particular items of study within the defined area. Achievement, rather than grades, should be emphasized. Decisions with regard to testing and grading, insofar as is possible, should be made jointly by the teacher and the students.

SUMMARY OF REPORT

By 1964, the first year of this project, a concensus had developed among interested educators, professional economists and government officials about the need for more and better training in economics in the high schools throughout the country. This agreement grew out of the recognition that people living in the U.S. need an understanding of the nature and operation of U.S. economy and an ability to use economic reasoning in their own economic and political life. The advocates of more emphasis on economics in public school curricula pointed to three aspects of the political economy of the 1960's which require such economic literacy of the people:

1. Most people perform economic functions which are often technically complex or are affected by complex social-economic forces. Thus, for full participation and success in our market economy, a person must understand the economic structure of our society.

2. This economic structure, both in its technical and social dimensions, is changing rapidly. This requires members of the society to change. If people understand the nature and causes of change, they can respond quickly to promote their own interests or goals.

3. Because the public and private sectors of the economy are so interdependent, economic policies and actions of public officials affect the economy's performance of announced goals and our choice of national goals--the economic and political direction of the society. Thus, informed and wise choices by the electorate in political,economic decisions are essential and require general economic literacy of the American people.

Although the need for literacy was evident in 1964, at that time only about five percent of the high school students took economics courses and about fifty percent received a smattering of economics in "Problems in American Democracy" courses. The economics, whether taught in economics courses or problems courses, was generally descriptive and all too often dry and sterile. There was little attention given to analytic thinking. The teaching materials were inadequate. The treatment in textbooks was mainly descriptive; economic analysis was almost entirely absent; the reasoning often loose and superficial; value judgments abounded. Most teachers were unprepared to teach the subject.

These were the problems existing in 1964 which the ECON 12 project hoped to help solve. We proposed to develop and evaluate a one-semester 12th grade course in economics suitable for students at all levels of achievement and scholastic abilities which could be used effectively by practicing 12th grade social studies teachers who have a minimum training in economics. The course was to be designed to implement and expand upon the recommendations in the National Task Force Report of 1961, Economic Education in the Schools, which called for a high school course to develop the student's capacity for economic reasoning through the use of economic analysis and empirical research. Accomplishing this objective required:

1. determining the theoretical concepts and information which should be contained in the basic course and the sequential organization of this content;

2. discovering and developing a set of pedagogical techniques for teaching the desired skills and information and for developing the desired attitudes about economics;

3. developing the necessary materials needed for classroom use and as resource material for the teacher;

4. investigating the problem of training teachers if the course materials themselves provide insufficient guides for minimally trained teachers;

5. developing a series of tests to evaluate the effectiveness of the course in satisfying the course objectives.

The intended final product of this project was a course consisting of a set of integrated teaching materials, together with a description by the investigators of the ways the materials could be used effectively.

Because the objectives were too amorphous to permit us to specify any elaborate research design, we chose to work within the pragmatic mode of action research which would permit us to develop more specific objectives as we gained insights from research or analysis. Systems design procedures were beginning to be applied to curriculum development, and we chose to use the metaphor of systems design to describe the research and development plan because it suggested our intent--a comprehensive, objective, and flexible approach to investigating a complex set of interrelated problems. As a natural consequence of this decision, it was also decided to design ECON 12 as a teaching system. During the first year of the project we became convinced of the usefulness of the approach, and we decided to keep a record of working procedures in hopes that general systems and curriculum design models could be specified by the end of the project.

As used in this project, a teaching system includes all of the people and materials involved in teaching and learning the particular subject, i.e., the teachers, students, written and audio-visual materials. Together, the people and the materials can perform the system function: to allow students to meet the course learning performance criteria. Course development system design procedures required that student performance levels be specified and that achievement of these performance levels be the criteria used in judging the success of trial versions of the course. In addition, the method required careful specification of the roles and functions of the people and materials, and continual feedback procedures (including testing) to permit the redefinition of objectives and revision of materials. This over-all approach is an extension of the procedures of programmed instruction to a design problem involving several kinds of media and learning strategies. We chose to use programmed instruction design techniques in an attempt to assure that the course would emphasize student achievement as the goal of instruction.

The project has resulted in a one-semester economics course suitable for most of the 12th grade student population. The course consists of the following materials:

Text - a short summary of the basic principles of economics students will learn to use studying course problems and case studies

Correlated Readings - provide encounters, case studies, and other information to use with course problems

Statistical Abstract - provides most of the general historical time series data needed for course problems

Programmed Instruction - twenty-eight short programmed instruction sequences to tutor students in the meaning and use of the basic economic concepts summarized in the text

Workbook Exercises - for individual and group work. Designed as inductive learning experiences, for use with case studies and as self-administered criterion tests for use at the end of a lesson.

Audio-Visuals - transparencies, film strips, and films

Instructional Guide - a manual for the ECON 12 system

The ECON 12 materials provide more than enough materials for a one-semester course, so that teachers can choose objectives and subjects to study which fit in with their own and their students' interests. The different kinds of materials included make it possible for teachers to experiment with new, more inquiry-oriented learning strategies. The nature of the course depends on how the teacher sets up the classroom learning conditions. The availability of the ECON 12 materials will permit qualified teachers to improve the effectiveness of their courses, but we hope that the course will encourage teachers to develop truly innovative learning environments. We think that the ECON 12 system gives teachers this opportunity. In this way, hopefully, the ECON 12 course, with minimal workshop or in-service training, will itself constitute a teacher training program.

With the publication of ECON 12 materials, a main thrust of economic education activity at the 12th grade level should be to realize the potential value of the system and approach by:

1. acquainting teachers with the curriculum--disseminating the system by means of ECON 12 orientation programs, workshops, in-service training programs and institutes;

2. improving the course through field testing, revision, and addition of specialized materials.

REFERENCES

Bach, G.L. "Economics in the High Schools: The Responsibility of the Profession," *Proceedings, American Economic Review.* Vol. II, No. 2. May, 1961.

Bach, G.L. and Saunders, Phillip. "Economic Education: Aspirations and Achievements," *American Economic Review.* Vol. LV, No. 3, June, 1965.

Bradley, Ruth; Kenney, Lucien B.; Owen, Viola; Washington, Eva. *Instrument for the Observation of Teaching Activities* (IOTA).

Coleman, James. *The Adolescent Society.* New York: Glencoe Free Press. 1961.

Contra Costa County Department of Education. *Developmental Economics Education Program,Final Report, Part II, General History and the Elementary School Curriculum Program. D.E.E.P. 1964-67.* Chicago, Illinois: Science Research Associates.

"Development and Evaluation of a Twelfth Grade Course in the Principles of Economics." Proposal for the U.S. Office of Education, Project H-153. Transmitted February 28, 1964.

"Economic Education in the Schools." A Report of the National Task Force in Economic Education. Committee for Economic Development. September, 1961.

"Economics in the Schools," supplement to *American Economic Review.* American Economic Association. March, 1963.

Joint Council on Economic Education. *Curriculum Directors' Newsletter*. Fall, 1963.

Jones, Galen. "The Current Status of Economic Teaching in the High Schools of the United States," *Bulletin of the National Association of Secondary School Principals*, No. 304. November, 1965.

Lovenstein, Meno. *Development of Economics Curricular Materials for Secondary Schools*. The Ohio State University Research Foundation, Columbus, Ohio. 1966.

Senesh, Lawrence. *Our Working World, An Elementary Grades Social Studies Curriculum*. *Grade 1: Families at Work (1964); Grade 2: Neighbors at Work (1965); Grade 3: Cities at Work (1967).* Chicago, Illinois. Science Research Associates.

Suchman, Richard. "The Thinking-Learning-Acting Model," *The Instructor*, August-September, 1966 to June, 1967.

Wiggins, Suzanne E. and Sperling, John. *Unit I and II Teachers Materials*, ECON 12, Project H-153. Test Edition, Pleasant Hills, California: Contra Costa County Department of Education. Spring, 1966.

Wiggins, Suzanne E. and Sperling, John. *Unit I and II Student Materials*, ECON 12, Project H-153. Test Edition. Pleasant Hills, California: Contra Costa County Department of Education. Spring, 1966.

APPENDIX A

FIRST VERSION OF ECON 12
DESCRIPTION OF PLANS AND SELECTED
UNIT I MATERIALS

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FIRST VERSION OF ECON 12
DESCRIPTION OF PLANS AND SELECTED UNIT I MATERIALS

SPRING, 1965

STRUCTURE OF THE COURSE

A. The course will be divided into three basic units and three optional units. The basic units will be built on a structure of economic principles; they will take from four to six weeks, depending on the requirements of the class.

Unit I. An introduction to the structure of economics, the nature of the discipline, and the importance of rational decision making.

Unit II. Micro-economics: The market mechanism (supply and demand and price determination), industrial organization through case studies, and income distribution.

Unit III. Macro-economics: Measuring aggregate economic statistics, national income theory and the analysis of the problems of growth and stability, monetary and fiscal policy as techniques to promote the growth and stability of the U.S. economy.

The optional units will take from two to four weeks and will be used at the discretion of the teacher. One unit, or two at most, could be taught during one semester.

Unit IV. International trade: Comparative advantage, the importance of international trade for the U.S. economy, the political and strategic importance of international trade, and U.S. trade policy.

Unit V. Comparative systems: A comparison of the functions of markets and the techniques of planning, the problem of comparability in U.S. and Russian national income statistics, and the cultural determinants of concepts of efficiency and welfare.

Unit VI. Strategies for economic growth: Economic growth as an economic, social, political and cultural problem, simple economic growth models, the role of advanced industrial economies in promoting economic growth in underdeveloped economies, and U.S. policies in underdeveloped economies.

B. The units will be divided into alternating sections.

1. Each unit begins with a section which presents a problem or problems which introduces the major concepts of the unit in an informal way. The problem sections also give the students practice in doing simple economic research both individually and working in groups.

2. The problem section is followed by a formal presentation of the concepts. This presentation is initiated by the use of classroom worksheets (the worksheets are described below), programmed instruction booklets, lectures and discussions. The units end with a section devoted to a discussion in which the students are encouraged to induce the concepts presented in the unit.

C. The teaching materials are multi-media and designed to serve the learning experiences which the students need in order to learn the concepts, skills and content of the course. The textbook is not the primary instructional device.

Materials in other media are of equal importance.

1. Classroom worksheets for formal presentation of economic theory--these are a form of programmed learning which includes classroom discussion. Student responses are constructed individually and cooperatively. A worksheet is a program of instruction which:

   a. Presents a precise sequence of learning experiences (each in a separate frame) designed to reach an explicit set of behavioral objectives.

   b. Presents learning experiences designed to provide, through a variety of activities, adequate practice to enable students to learn concepts, skills and information.

   c. Provides, when properly completed, a set of well organized class notes.

   d. Directs the student in the proper use of other learning materials.

2. Programmed instruction booklets--these are short (one-half to two-hour programs depending upon student ability) programs designed to present some precisely defined concept, quantum of information, or skill. The programs can be given for completion in class or as homework. Each program has a criterion test which is administered in class.

3. Textbook--this has been reduced to a summary presentation of the content of each unit and its major function is its use as a unit review.

4. Readings Book--to be used as a source of data for the problems and for readings which present theory in an interesting manner. This will contain statistical data, newspaper accounts of economic controversy, articles by publicists and articles and excerpts from scholarly sources.

5. Audio-visuals

   a. Slide shows (150 to 200 slides) with or without sound. Such shows can be used to introduce a unit or a particular subject. This can be done evocatively and impressionistically as a means of stimulating student interest and creating student attitudes which will allow learning to take place. The slide show can also be used for a dynamic presentation of an economic concept.

   b. Charts and transparencies for the presentation of statistical data, maps,cartoons, etc.

   c. Video-tapes and films. The use of these media will be developed in phase II of the project.

6. Reading materials for school libraries.

TEACHING TECHNIQUES

The course will be taught with a variety of teaching techniques, lecture, discussion, programmed classroom work, individual programmed instruction and the use of audiovisual materials for evocative and analytical purposes. All of these techniques will be designed to enable the student to assimilate and accommodate a minimal body of empirical data, to learn the skills necessary for manipulating and analyzing economic data and to induce for himself the basic concepts of economics -- these are the major generalizations of the course. In this latter sense, the course rests upon the use of the techniques of inductive teaching.

Problem Descriptions & Worksheets

Car Purchase Problem

Choose a new car to be used by you

1. Assume you are buying it during the first year in which you have a full time job.
2. In making the choice, include all realistic sources of money available to you.
3. Make the choice by going through a logical procedure -- a series of steps in making the choice. Describe the steps you went through and use all relevant information necessary for each of the steps.
4. Include a statement about how you are going to pay for the car. Figure out down payment, amount and number of monthly payments.

Career Choice Problem

Hand in an outline in the form given below, substantiating your choice about a lifetime career. Generate the questions you must ask yourself, tell what specific data you will need to answer the questions, and give the data sources.

Questions Asked	Specific Data	Data Sources
(place in logical sequence)		

Bay Fill Problem

1. What are the alternative uses of the San Francisco Bay, its tidelands and shorelines?
2. Classify these uses according to public versus private uses.
3. Who should decide on how to use the Bay? How should they decide? What should be the basis for making such a decision?

4. What are the consequences of no regulation over and above that which exists at the present time?

5. If you think that regulation is necessary, what kind?

6. What are the possible consequences of this type of regulation?

U.S. Sale of Wheat to Russia in 1963

1. Do you agree with the exception that was made in our foreign trade policy in 1963, which allowed the sale by U.S. grain dealers of wheat to Russia? To answer this question:

   a) state policy

   b) list economic and political considerations

   c) analyze possible economic and political consequences

   d) make a decision and justify it

2. Should the U.S. adopt a policy of freer trade with Russia?

   To answer this question you must:

   a) analyze the effectiveness of the wheat sale in achieving the objective it was designed to achieve

   b) analyze the political and economic consequences of a new policy of permitting more trade

   c) discuss alternative policies

Unit I: Summary of Rational Decision Making Procedure for the Economic Decision Problems

Problem	What do you need?	What limits are there in getting what you need/want?	What are the alternative ways of satisfying your needs/wants?	What are the consequences of one choice over another?
	State objectives which will satisfy needs/wants. (list general categories)	List limits to achieving your objectives.	List alternative solutions.	Calculate alternative costs.
Car Purchase	Transportation Status Entertainment	Income Alternative uses of income Alternative sources of funds other than your income	Alternative types of transportation or status symbols Alternative cars Alternative ways to obtain car services	Calculate cost of each alternative (include imputed costs). For each pair of alternatives compare qualitative advantages with the cost differential to determine whether or not the additional cost of one choice is warranted because of additional expected satisfaction.
Career Choice	Financial Moral Type and amount of work Intellectual Physical Leisure Power	Labor market conditions--supply of career opportunities Your time for training and work Opportunities for training Personal traits	Alternative uses of time Alternative jobs Alternative types of training Alternative attempts to succeed Alternative amounts of risk	Calculate expected income and list advantages of each alternative. Calculate expected costs (include imputed costs including risks. Compare costs and advantages to determine if the expected extra satisfaction is worth the expected extra cost.

Problem	Objectives	Limits	Alternative Solutions	Alternative Costs
San Francisco Bay Development	(Differentiate between public & personal objectives.) Economic exploitation Conservation of beauty Wildlife Climate Clean water & air Public safety	Land & water in the Bay Area as compared to its population & it's needs Present vested interests current public & private property rights current political alignments & commitments Current & possible government regulation	Alternative uses of bay Alternative regulation of or restrictions on private & public uses Alternative compromises between vested interests & between public & private interests	Calculate income from and costs of each alternative--in quantitative terms, allowing for risks; compare with qualitative differences.
U.S. Wheat Sale to Russia	Economic objectives for U.S. general public, for vested interests in U.S. Political objecives of the general public Personal economic, political and humanitarian objectives	Existing policy of embargo on trade between U.S. & Russia Existing farm price support & wheat storage program World political atmosphere	Sell or not sell Sell with varying numbers of strings attached to the sale Sell as an exception to our trade policy, or liberalize our policy to allow for increased trade	Calculate income & compare with costs; calculate risks involved in alternative political postures in the Cold War.

APPENDIX B

CURRENT OUTLINE OF ECON 12

APPENDIX B
CURRENT OUTLINE OF ECON 12

UNIT I
General Purpose

This unit helps students develop a point of view towards economics, thereby preparing them for the more formal economic analysis in succeeding units and for economic decision making in their own lives. By "a point of view" we mean that students "know" what economic analysis is and how to apply simple tools of economic analysis to important decisions and that they "appreciate" its usefulness.

Acquiring this point of view involves learning the conceptual structures described in Chapter 2, which defines the subject matter of economics and learning about three kinds of analysis: efficiency tests (lessons 2 & 6); systems analysis (lessons 4&5); and the jurisprudential model of conflict analysis (lesson 6). These are the"organizers" students learn through the programs, exercises and text. They apply the concepts and methods in analyzing readings, and through class discussions and projects.

LESSON I: A FIRST LOOK AT ECONOMICS

Lesson Purpose

Lesson I provides a first look at economics and its significance. This lesson introduces five concepts fundamental to the structure of ECON 12 and to any thinking about economic problems: scarcity, social organization, economic choices, alternative cost, and economic conflict. The want-satisfaction chain is introduced as a simple model to describe the economic activity required to satisfy wants. It is the primary organizing system students use in Lessons 1, 2, and 3.

By the end of the lesson the students should, in written and oral presentation, be able to use these concepts to at least the level specified in the behavioral objectives. In addition through discussion organized around general questions about the nature of scarcity, students should express some of the relationships between the basic concepts introduced in the lesson.

CONCEPTS, THEORIES AND ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
WANTS	1. Most men are motivated by physical and psychological wants, and there is no clear distinction between them.	filmstrip discussion
	2. Both physical and psychological wants change, recur and grow. Often the act of satisfying one want creates another.	
WANT-SATISFACTION CHAIN PRODUCTION CONSUMPTION DISTRIBUTION	3. Men use resources to produce the goods and services needed to satisfy their wants. The want-satisfaction chain shows this economic activity to satisfy wants.	reading lecture-discussion
SCARCITY	4. At any one time, men have always had more wants than they could satisfy with the available resources. This creates a condition of scarcity; that is, Wants > Resources.	Workbook: Exercise 1, completed in small groups, followed by class discussion.

CONCEPTS, THEORIES, AND ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
ECONOMIC CHOICES	5. The existence of scarcity means that men can't satisfy all their wants, so they must make choices about which wants they will satisfy and how to use their resources to satisfy these wants. 6. The alternative cost of choosing to consume one thing is the satisfaction lost from not consuming something else.	Workbook: Exercise 2, followed by a class discussion.
ALTERNATIVE COST CALCULATIONS	The cost of using a resource to produce one thing is the value of using it to produce something else.	
SOCIAL ORGANIZATION	7. People organize into societies to make more efficient use of their resources and to resolve conflicts between people over the use of scarce resources.	lecture. Discussion of reading "Science and Hunger, A Growing Gap" from the San Francisco Chronicle.

LESSON 2: ECONOMIC PROGRESS AND ORGANIZING PRODUCTION

Lesson Purpose:

In this lesson, students study the production aspect of the want-satisfaction chain in detail. In particular the lesson defines resources, making the distinction between capital and natural resources. Students explore the basis for economic growth through the organization of production specialization to increase resource efficiency. They study the possibilities and limitations to increasing the productivity of resources. This lesson enables students to use the concepts production efficiency and specialization, and the law of diminishing returns.

3

A crucial objective of this lesson is for students to begin to use quantitative data and ratios to describe production relations. Production efficiency is a technical relation between the amounts of output and corresponding inputs used up to produce the output. Two programs build facility and familiarity with the use of input and output data to make quantitative comparisons.

The readings give examples of modern round-about, specialized production in the automobile industry. This technical information is necessary background for the industry organization studies in Unit II.

Finally, because students consider it unnecessary and sometimes annoying to learn specialized meanings of words used in economics, this lesson provides a program and other learning experiences requiring students to explore the nature of definitions and the importance of precise definition in science.

Lesson 2 Summary

CONCEPTS, THEORIES, & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
ECONOMIC GROWTH INPUTS: Natural & CApital (Human, Nonhuman) OUTPUTS: Goods and Services	1. Economic growth requires a growth in inputs and outputs. 2. A major basis for growth is to increase the man-made inputs--capital.	Lecture--Discussion using reading by Robert Heibroner on defining capital, class quizzing on definitions.
PRODUCTIVITY RATIOS (input-output)	3. Most economies strive to be as efficient as possible in the use of scarce resources. Productivity or efficiency is measured by the ratio of output to inputs used up in production.	Program & Discussion
SPECIALIZATION: Division of labor, resource specialization, capital creation ROUND-ABOUT PRODUCTION: Stages of Production	4. Efficiency is increased through the specialized use of resources--land, labor and capital	Class discussion organized around: Film, "Production.: Reading, "Automobile Manufacture, A Mass Production industry" original essay.

CONCEPTS, THEORIES, & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
THE LAW OF DIMINISHING RETURNS	6. The ability to make resources more and more efficient is limited by the Law of Diminishing Returns.	Program & Discussion
DEFINITIONS IN SCIENCE		Program & Discussion

LESSON 3: EXCHANGE: MONEY, CREDIT AND FINANCIAL CAPITAL

Lesson Purpose

This lesson relates to the distribution box of the want-satisfaction chain; it introduces students to the financial or monetary aspect of economic activity. Students learn that exchange and money are outgrowths of specialized production. In a money-exchange economy, each exchange involving goods and services has an equivalent and opposite money exchange. Students should see this vital role of money, but this should not obscure the real economic activity which money exchange makes possible. This understanding of the parallel between the real economy and the money economy is a prerequisite to an understanding of the circular flow model, national income theory, the function of monetary and fiscal controls, and the function of monetary institutions in promoting economic growth.

An important purpose of the lesson is to permit students to explore the function of money and credit in an economy They must learn what they are, how they are created and how they are related.

Thus, in this lesson students study how the financial organization of business serves the technical needs of production. This is introduced with the study of corporations in which students learn that corporations developed out of the need to find a stable form of business organization capable of raising large amounts of financial capital. Students learn the relation between real and financial capital and to distinguish between them. They are introduced to two new concepts--investment and saving--activities which bring about the accumulation of real capital in a society thereby permitting growth.

The lesson introduces students to consumer finance as well - the financial institutions which provide consumer credit, the changing forms of consumer credit and the cost of borrowing.

Lesson 3 Summary

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
EXCHANGE BARTER	1. When people engage in specialized production, they become dependent upon trade or some other means of distribution.	Small group work on workbook exercise 1, class discussion.
MONEY	2. Money has three functions: it is a medium of exchange; it is a unit of account, and it is a store of value. 3. Different things can serve as money, but the form depends on the function(s) money serves. 4. Money must have two properties: it must be scarce, and it must have acceptance among its users.	Small group work on workbook exercise 2, and 3, class discussion
PURCHASING POWER CREDIT INCOME WEALTH	5. In a money exchange economy, people are almost completely dependent on having purchasing power (command over money) to get the things they want. 6. A person's purchasing power depends on his income, wealth and credit rating. 7. Credit expansion has made possible the enormous expansion of the U.S. economy.	Program

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
FINANCIAL INSTITUTIONS	8. In the U.S., and all market exchange societies, most loans are made through financial institutions.	Workbook exercise 4 & 5, small group work followed by class discussion Discussion Readings from Newsweek on the Credit Revolution.
CORPORATIONS	9. Financing large industrial plants or other productive facilities created the need for special kinds of business organization, e.g., the corporation.	Discussion of Readings: "The Nature & Importance of Inc.", original essay Cochran, "The Era of Bankers." Description of J.P. Morgan & Co. Lawrence Seltzer "Financing the Infant Auto Industry".
REAL AND FINANCIAL CAPITAL & INVESTMENT	10. Corporations get purchasing power to buy real capital by creating financial capital.	Program
SAVING	11. Saving- not spending current income--is one source of purchasing power for investment and it also frees productive resources for use in producing capital goods.	Program

LESSON 4: ECONOMIC ORGANIZATION OF SOCIETY

Lesson Purpose:

This lesson is an introduction to studying comparative economies, thus to a generalized form of microeconomics. Students study the universal characteristics of all economies and the relation of economic organization of a society to the general culture of the society. They do this by developing a model of economic organization of a society which relates what students have learned in the first three lessons to two new sets of concepts in the course structure: the three modes or patterns of action (custom, command, market bargaining) and the five basic economic goals (justice, freedom, progress, stability and security).

The students then test the model by using it to compare some of the five different economies described in the lesson readings.

Developing the model requires students to generalize about the basic characteristics of economic organization found in all societies. The model they develop will be some version of the course conceptual structure. (See chapter four of this report for two possible diagrams). It will show that economic organizations in a society make the basic allocation decisions and carry out the five basic economic activities (production, distribution, saving, investment, consumption). The form of organization in any society depends on the goal and patterns of action unique to that society.

This lesson accomplishes several ends. By building and criticizing each others' models, students begin to learn that models and abstract thinking are useful and fun. They begin to learn rules of model building and model use. In the process, students learn the concepts and conceptual structure embodied in the model. That is, by creating, using and critiquing their models, students achieve the knowledge, skill and attitude objectives of the lesson. They learn the required information about the universal characteristics of any economy, they learn how to compare economies, how to construct models, and they start enjoying the intellectual process.

Lesson 4 Summary:

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
BASIC ECONOMIC ACTIVITIES Production Exchange Savings Investment Consumption BASIC ECONOMIC DECISIONS What How How Much For Whom	1. In carrying out its economic affairs a society engages in five basic economic activities and makes four kinds of decisions about these activities. The basic activities are PRODUCTION, EXCHANGE, SAVINGS, INVESTMENT & CONSUMPTION; they all are economizing activities. The decisions governing these activities all concern the allocation of scarce resources: WHAT, HOW, HOW MUCH, AND FOR WHOM to produce.	Read text., view film "Model Man." In small groups students construct diagrams of the characteristics of an Economy, using the want-satisfaction chain as a starting point. Critique models in class discussion.
ECONOMIC INSTITUTIONS OR ORGANIZATIONS	2. Economic institutions perform these five basic activities and make the four kinds of decisions. An institution, in this sense, is a group of people organized to perform a particular function or functions.	Use model to compare economies described in readings: "The Kiowa A Plains Indian Tribe;" "The Tsimshian of the Northwest Coast"; "Industrial Production In the Soviet Union;" Samuel Elliot Morison, "The Boston Ice Trade."
PATTERNS OF ACTION AND ORGANIZATION Custom Command Market bargaining	3. The institutional arrangement whereby decisions are made can be described by examining the influence of CUSTOM, MARKET BARGAINING or GOVERNMENT COMMAND decision-making patterns	

Lesson 4 Summary: (continued)

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
ECONOMICS GOALS Progress Justice Freedom Stability Security	4. The economic goals of a society are all related to one or more of these five basic aspects of economic life.	Compare differences between primitive and industrial economies using workbook exercises, if necessary, as a starter.
5-4-3-5 MODEL for analyzing and comparing economies	5. Economies can be compared by analyzing the different ways in which patterns of action and economic goals operate and determine the unique form of economic organization in a given society.	
MODELS	6. A model is an abstraction of some aspect or part of the real world; it simplifies the real world by describing important relationships. Constructing a model requires you to decide on what part of the real thing you want to include.	Students analyze what their model is, compare different ways and degrees of abstracting.

LESSON 5:

Lesson Purpose:

This lesson is an introduction to macroeconomics, the study of the operation of the total economy as an economic system of interrelated economic institutions which function to satisfy the society's economic needs. This lesson introduces concepts and a way of thinking which are prerequisite to understanding macroeconomics--national income theory, monetary and fiscal policy and national planning:

1. The concept of system and that any economy can be conceived of as a system;
2. The simple circular-flow model;
3. Some basic definitions used in national income theory.

Lesson 5 Summary:

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
SYSTEMS MODEL FOR ANALYZING AN ECONOMY INTERDEPENDENCE	1. An economy can be thought of as a system of individuals and institutions in which each activity and each decision affects all other activities and decisions. In a system, everything depends on everything else.	Program
CIRCULAR FLOW MODEL	2. The circular-flow model is a simplified scheme of a money exchange, industrialized economic system.	Small group work to develop and analyze the circular flow Diagram as a model of the U.S. Economy.
	3. The circular-flow model shows the flow of money and of goods and services between family households and business firms in payment for the exchange of goods and services.	Construction of a circular flow model for the Russian Economy.
FACTOR MARKETS PRODUCT MARKETS	4. Exchanges take place in factor & product markets.	Workbook Exercise 1.
STOCKS AND FLOWS	5. There are two basic kinds of economic variables: stocks & flows.	Workbook Exercise 2.
MACROECONOMICS GROSS NATIONAL PRODUCT (GNP) NATIONAL INCOME	6. The circular-flow model is an introduction to macroeconomics; i.e. , the study of the performance of a total economic system.	Class discussion and small group work to inquire into the important questions in macroeconomics using a film "The Circular Flow Model".

LESSON 6: ECONOMIC GOALS AND ECONOMIC ORGANIZATION

Lesson Purpose:

This lesson focuses on the relation between rational economic decisions and the achievement of an individual's or a society's economic goals. The meaning of efficiency is broadened to measure the economy's success in satisfying the goals of society: freedom, justice, progress and stability. Students are introduced to the value problems in economic choices--the necessity to choose between personal and national economic goals. Finally, they learn the meaning and importance of economic ideology as a statement of the general goals of a society when an ideology is seen as a description and justification of an ideal type of economy, such as the free enterprise system or various socialist systems.

A major objective of this lesson is to permit students to start to learn a procedure for analyzing controversial issues as a means of developing a consistent personal value system which will enable them to make more rational economic choices. The lesson readings present examples of particular controversies between opposing groups in the U.S. and between opposing ideological positions. Students discover that economic organization and policies have different effects on the economic and social welfare of particular groups in a society. They consider the problem of how to pursue the basic economic goals given the scarcity conditions and the fact that freedom, justice, progress and stability are distributed unequally among the population.

Students do this by learning to use the jurisprudential model of conflict analysis; the model is a procedure for identifying and analyzing the issues of definition, fact, prediction and values in a given public policy controversy. Students learn to identify, clarify and perhaps settle disputes over definitions, facts, or predictions, and to center discussion on the value issues.

The jurisprudential model can be used to analyze public policy issues and also to isolate the source of conflict between different ideological positions--the particular definitions of freedom and the conceptions of man embodied in competing ideologies.

Lesson 6 Summary:

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
EFFICIENCY	1. To increase the efficiency of the total economy so that it will advance the major goals of the society means the success in satisfying the wants of the people (promoting the public welfare.)	
PUBLIC WELFARE & PUBLIC POLICY	2. The economic organization of our society determines how the goals of freedom, justice, progress, and stability are promoted. Public policies influence economic organization and create the legal constraints on economic activity.	
	3. Groups which wish to improve their economic position work to change economic organization and government policy. This necessarily throws them into conflict with groups whose welfare would be harmed by such changes. The society changes to conform to the goals which emerge from the process of resolving or attenuating these conflicts.	
VALUE SYSTEMS CONFLICT RESOLUTION THE JURISPRUDENTIAL MODEL OF CONFLICT ANALYSIS	4. Conflict resolution is made difficult because the disputants often have widely divergent goals or clusters of goals value systems--to which they hold a strong emotional commitment. 5. In economic conflicts it is necessary to identify the issues of fact, definition and prediction which can be settled and to isolate the real value basis for the controversy.	Small group use of model to analyze readings: Court Decisions on racial segregation-Plessary vs. Ferguson Swett vs. Painter Brown vs. Board of Educ. Current readings on the 1967 summer riots.

Lesson 6 Summary: (continued)

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
ETHNOCENTRISM IDEOLOGY IDEOLOGICAL ECONOMIC SYSTEMS Capitalism Communism	6. An ideology describes an ideal economic organization of society in which the basic goals of the people will be achieved. The ideological justification of our economy is based on the theory of the purely competitive, market system--capitalism.	Milton Friedman from Capitalism & Freedom V.I. Lenin from the State & Revolution, Class Sovieties & the State. The Programme of the Communist Internation
	7. Confusion of the real economic system with the ideal impairs reasoned analysis of alternative public policies in affecting change in economic organization.	Sumner Slichter, "Some Claims on Behalf of Free Enterprise."

LESSON 7: ECONOMICS, SCIENCE AND SOCIAL SCIENCE

Lesson Purpose:

The purpose of this final lesson in Unit I is to review the previous six lessons, and to enable students to develop a complete definition of economics which relates economics to science and the other social sciences. Students are required to explain the four necessary parts of the definition, to compare different correct definitions, distinguish economics from the other social sciences, to describe the two major fields of economics (macroeconomics and microeconomics) and to distinguish between pure and applied economics.

Finally, students should see the function of economic research and analysis in aiding economic policy makers to arrive at decisions which will promote their own or the public interest.

Lesson 7 Summary:

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
ECONOMICS	1. The definition of economics as a social science establishes a frame of reference for studying economics. Economics is "the science which studies human behavior as a relationship between ends and scarce means which have alternative uses." (Lionel Robbins) 2. It is important to delimit the field so that a person can better distinguish between what is and what is not economics. Because economists do not confine their study to a group of specifics, it is difficult to state a definition which is exact. 3. Economics studies the organization of society to make decisions and carry out activities which allocate scarce resources to satisfy human wants. Economics is the study of economies or economic systems.	Program
SOCIAL SCIENCES: sociology, political science, anthropology, economics.	4. To get a firm grasp on what economics studies, it is also important to be able to distinguish economics from other social sciences.	
MICROECONOMICS MACROECONOMICS PURE & APPLIED ECONOMICS ECONOMIC POLICY COMPARING COSTS & BENEFITS	5. There are two major divisions in economics: one is according to microeconomics and macroeconomics. Another distinction is between Pure and Applied economics. 6. Economic policy making means the creation of policies which will enable the economy to achieve the goals. This requires a comparison of costs and benefits of alternative uses of scarce resources or alternative forms of economic organization.	

Lesson 7 Summary: (continued)

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
SUMMARY		Discussion of Readings: J.M. Keynes, "Economic Possibilities for our Grandchildren." Michael Harrington, from Ch. I of The Other America.

UNIT II

THE U.S. MARKET SYSTEM AND ITS INSTITUTIONS

Lesson 1: The Market System of Allocating Scarce Resources: A General View

Lesson 2: Models, Their Meaning and Application in the Social Sciences

Lesson 3: Market Operation and the Law of Supply and Demand

Lesson 4: The Long-Run Performance of Purely Competitive Markets

Lesson 5: The Long-Run Performance of Pure Monopoly Markets

Lesson 6: Comparing the Effects of Perfect Competition and Perfect Monopoly in Resource Allocation

Lesson 7: Types of Imperfectly Competitive Markets

Lesson 8: Industry Case Studies

Lesson 9: Income Distribution

Lesson 10: Poverty in the U.S.A.

GENERAL INTRODUCTION

Units II and III study the U.S. economy as an economic system. They introduce the students to both the actual operation of our economy and to formal economic analysis and research. The U.S. economy, when thought of as a system, is an orderly arrangement of parts which, taken together, interact to perform a function.

Unit II is a microeconomic study of the U.S. economy, i.e., an analysis of markets. The approach taken here is for students to learn the principles and factual information necessary to allow them to evaluate how and how well the major market institutions (the parts of the economic system) perform their functions of making and carrying out the what, how and for whom decisions. We might borrow a term from anthropology by calling this "functional analysis" of markets.

The Unit is organized around two public policy issues, the study of which give the students the opportunity to use price theory as an aid to understanding economic decision making. The two issues are the soundness of U.S. government policy in 1) modifying market competition to attenuate economic conflict, and 2) eliminating poverty.

Students learn: 1) how factor and product markets operate to allocate scarce resources, 2) how they affect the distribution of income, 3) the justification for government intervention in markets, and 4) the effect of government intervention in correcting market operation or in creating new problems. In lessons 1-6 students acquire background by learning the general principles which apply to all markets--the similarities of market functioning regardless of competitive conditions and the effect of differing competitive supply and demand conditions on the functioning of a particular market.

They learn the necessary factual information about market operation by applying this theory to a comparative study of three U.S. markets (lessons 7 and 8) and to comparison of differences in income distribution among different groups in the U.S. (lessons 9 and 10.)

The market analysis requires students to answer a series of questions which use organizing concepts from price theory and industrial organization:

1. How does the market function? Describe the short-run competitive conduct between buyers and sellers which determines the price, quality and amount of the product sold.
2. How well does it function? (Describe the long-run performance of the market in allocating scarce resources).
3. Why does the market function this way? (Describe the competitive structure of the market, that is, the number and kind of buyers and sellers in the market.
4. Is there need for change in the conduct, performance or structure of the market?
5. How do you bring about such change?

We have tried to organize this unit to allow students to learn as much as they can about the operation of U.S. markets, at the same time recognizing that many students will not be able to nor be interested in learning economic theory. We try to help teachers solve problems of teaching the subject in these ways:

1. The theoretical content is restricted to the bare minimum required to allow students to understand the effect of differing competitive conditions on the long-run performance of a market;

2. Learning experiences are sequenced and programmed instruction is used to optimize student ability to learn to use the analysis;

3. Options for organizing this unit allow it to be adapted to the interest and abilities of the students; here we suggest the main choices.

Unless the teacher does not intend to go into macroeconomics we suggest that he choose only one of the two public policy problems, either the case studies of industry organization and government intervention, or the study of income distribution and the government policies to alleviate poverty.

The industry organization problem requires a greater understanding of market operation and an ability to interpret data on the actual operation of the industries studies. It is appropriate for able students who are curious about business competition; for them the problem has proved to be highly stimulating because it gives them some experiences dealing with actual business decisions. If the teacher decides on this option, students should study lessons I through 8. To increase student interest he may want to assign the industry case studies soon after beginning the unit. This will get students started immediately applying the theoretical concepts they will be learning and it will give them more time to collect data on the industries they study.

For students less able or interested in using economic theory we suggest focus on the study of income distribution and the poverty problem. The relevant lessons for this option are lessons I through 6, 9, and 10. For students who are unable to handle much abstract analysis, it may be necessary to cut out parts of lessons 3 through 6, telescoping the main ideas by eliminating or further simplifying the graphic analysis of supply and demand. Students should understand the general principles included in lessons I, 2 and 6 as a prerequisite to studying the poverty problem.

Finally, for those classes more interested in learning the principles of economics than the application, we suggest completing lessons I through 7 and 9. These include the theoretical treatment of price theory and the pertinent summary information about market organization and income distribution.

LESSON I: THE MARKET SYSTEM, A GENERAL VIEW

Lesson Purpose:

As an introduction to the unit, this lesson allows students to look at the overall function of markets (the price system) in allocating scarce resources and distributing income. The lesson should summarize the general objectives of the whole unit so that students understand the connection between lessons and can help the teacher to decide which lesson options he wants to use.

This lesson introduces students to a new concept--cybernetic system. After students learn what a cybernatic system is they should explore what about markets is cybernetic, that is, how they operate automatically to assure that production responds to changes in consumer demand for goods and services.

Students also learn that a market economy is based on certain laws and customs: people must be free to work for wages; workers and employers are free to accept to quit jobs, to hire and fire; people can own property and can enter into contractual arrangements to sell or lease their property. Because a market economy depends on governmental protection of personal economic rights, economic and political life are closely related.

Lesson I Summary:

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
CYBERNETIC SYSTEM	A cybernetic system is a control system which uses information to adjust the functioning of the system in order to attain a desired goal. It is an automatic feedback system which responds to signals it creates itself; it is automatic and is automatically self correcting.	Program: Cybernetic Systems

Lesson 1 Summary: (continued)

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
THE PRICE (MARKET) SYSTEM	A price system is an economic system in which most major economic decisions are made through market buying and selling. Each individual decides for himself what contribution to make to the economy with the understanding that he can sell that contribution at a price acceptable to him and the buyer and that he can obtain the goods and services contributed by other individuals only at prices acceptable to them. The price system is a cybernetic system.	Group work: to discuss how the market system is a cybernetic system. Readings: Robert Dorfman, from Ch. 1 The Price System. Group work: Students draw feedback loop diagrams which describe market price adjustment. Workbook exercise
Necessary Social Conditions		
Three functions of a Price System	People work for wages; they have the right to own property and to enter into contract to lease or sell it. 1. induces people to work and assigns jobs 2. compels consumers to choose between available goods and services 3. coordinates and controls economic activity	lecture discussion

LESSON 2: MODELS, THEIR MEANING AND APPLICATION IN THE SOCIAL SCIENCES

Lesson Purpose:

This is a short lesson designed to convince even the most skeptical students that there is a legitimate use for theoretical models and to show how models can be used to explain and to predict economic events.

Lesson Purpose: (continued)

The student learns that models are abstractions from reality. He learns the relation between models and their real world counterpart by examining the three kinds of models used in this course: models of explanation (the circular flow diagram), models of perfect competition and perfect monopoly in Unit II). Finally, he learns how scientific model building is just an application of the scientific method.

This lesson is included because many students do not see the relevance of studying unrealistic model markets. Such an attitude makes it even more difficult for students to understand an already difficult subject. Hopefully this introduction will prevent this attitude from developing.

Lesson 2 Summary:

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
MODELS ARE ABSTRACTIONS	1. An abstraction is a simplification of the real world; it chooses from the real world only those facts important to the purposes of the abstraction.	View film "Model Man" Discussion
	2. Models set up rules for choosing the facts from the real world.	
MODELS ARE NOT REALISTIC	1. Models are not life but only representations of life.	Program
	2. Models are restricted in scope and only explain a limited spectrum of events.	
	3. A model's usefulness is limited by the accuracy of the assumptions upon which it is based and the availability of data upon which to base assumptions.	Discussion

Lesson 2 Summary: (continued)

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
FUNCTIONS AND FORMS OF MODELS	1. Explanation, prediction and idealization 2. Models take many forms: diagrams numbers (equations) words, and physical representations.	
STEPS IN MAKING MODELS	There are six basic steps in making a model: 1. Select observations from the real world. 2. construct model 3. test model to see if it explains or predicts accurately 4. revise model if necessary 5. test again 6. repeat 3 and 4 until model explains or predicts accurately.	
QUALITIES OF VALID MODELS.	1. A model is valid to the extent to which it performs the functions for which it was designed. a. An explanatory model provides an adequate explanation. b. A predictive model gives good predictions. 2. Models are valid or invalid, not true or false. A model is not reality; therefore, truth is not a consideration.	

LESSON 3: MARKET OPERATION AND THE LAW OF SUPPLY AND DEMAND

Lesson Purpose:

The next three lessons show how the competitive market mechanism allocates scarce resources in response to consumer demand, given the existing supply of resources. They prepare students for the next case studies on industry in Lessons 8 and 9. In particular, they should give insights into the operation of market competition so that students know what to compare when they study different kinds of industries.

This lesson introduces the economist's definition of a market. Students learn to summarize the conditions which exist in a particular market at a particular time by using demand and supply curves. Then they learn to use these demand and supply curves to predict market price and changes in market prices resulting from changes in demand or supply conditions. This lesson prepares students to use demand and supply curve analysis in lesson 4-6 to trace the long-run effects of competition in allocating resources in different kinds of markets.

Throughout this and the following lessons we try to provide materials which anticipate student's problems in following the analysis to assure that most conscientious students will be able to achieve the lesson objectives.

Lesson 3 Summary:

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
MARKET	1. A market is the total group of buyers and sellers who compete to buy and sell a product.	Program:
ARITHMETIC LINE GRAPHS	2. Line graphs are used in economic analysis to show the functional relationship between two variables.	Program: Overhead transparencies for class discussion

Lesson 3 Summary: (continued)

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
MARKET DEMAND	3. Demand is a relation between price and the quantity people will buy of a good or service under certain market conditions. The demand for a good or service is usually a nagative function of price.	Program: Lecture discussion using overhead transparencies.
ELASTICITY OF DEMAND	4. Demand elasticity describes the responsiveness of buyers to a change in price. Demand is elastic if a given percentage change in price (5%) brings about a larger percentage change in quantity demanded (10%).	
DEMAND CONDITIONS	5. There are other variables which affect the amount of a good or service people will buy. e.g., income, tastes. These are called demand conditions because for the purpose of our analysis we assume these variables do not change--they are given.	
MARKET SUPPLY	6. Supply is a relation between price and quantity producers will sell. The supply for a good or service is a positive function of price.	Program: Lecture Discussion using overhead transparencies.
SUPPLY CONDITIONS	7. Supply conditions are variables affecting the supply price-quantity relationship.	
MARKET PRICE DETERMINATION	8. Market price and quantity sold are that price and quantity at which demand equals supply.	Program, workbook exercise and class work using transparencies.
PRICE CHANGES: THE LAW OF SUPPLY & DEMAND	9. Price and quantity sold change whenever market demand and supply conditions change.	Program, workbook exercise and class work using transparencies.

LESSON 4: THE LONG-RUN PERFORMANCE OF PURELY COMPETITIVE MARKETS

Lesson Purpose:

In this lesson students learn the long-run effects of pure competition--that in such a market competition between firms and the entry of new competitors insures that the output will be supplied at the lowest possible cost, that whenever demand increases more firms enter the industry to increase the quantity supplied and that when demand declines firms leave the industry, thus reducing quantity supplied. For those students who are capable of abstract reasoning, this lesson gives them practice deriving these conclusions themselves. For those who cannot complete the analysis themselves, the course materials should permit them to follow the argument well enough to learn and be convinced of the basic long-run tendencies.

Lesson 4 Summary:

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
PURE COMPETITION, MARKET STRUCTURE	A purely competitive market is defined as one where the following competitive conditions exist: 1. So many buyers and sellers that no one individual or group can affect price (by withholding their supply or demand). 2. No barriers to entry into the market. 3. All suppliers offer an identical product.	Lecture-demonstration & Student recitation using Overhead transparencies. Workbook exercise
MARKET CONDUCT (Short-run Competition)	There are frequent price changes which occur whenever demand or supply conditions change, price changes. The price changes affect the amount sellers produce and their profit rate.	

Lesson Purpose: (continued)

The second exercise is a role-playing situation which allows students to explore the behavior of a monopolist faced with possible new competition.

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
PURE MONOPOLY	A pure monopoly market is one in which: 1. There is only one supplier 2. There are complete barriers to entry; it is not possible for new firms to supply the good or service.	group problem solving using workbook exercise
MARKET CONDUCT (Short-run)	The monopolist can affect price by restricting supply, or set the price. The monopolist will either set price or fix supply so as to maximize his profits (the difference between total revenue and total cost).	
MARKET PERFORMANCE (Long-run Effects)	Since there are no competitors to force down price the monopolist can continue to earn excess profits, can delay introducing new inventions, may deliberately prevent new producers from entering the market.	Class discussion

LESSON 6: COMPARISON OF MARKET PERFORMANCE: PERFECT COMPETITION AND PERFECT MONOPOLY

Lesson Purpose:

This is a summary in which students discuss the different effects of competition and monopoly on resource allocation in the long-run.

Lessons 3-6 describe a model world where conditions of complete competition and complete monopoly are met perfectly. Each model is "perfect" because it is a world of 100% monopoly or 100% competition. Because they are perfect, they are unreal.

Students should understand that these markets should not be considered "ideals" which we want to create. The models are useful because the conduct and performance of the real world markets can be compared with these two extremes to determine the need for public policy--to either increase competition or to control or reduce monopoly power.

Lesson 6 Summary:

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
The STRUCTURE, CONDUCT PERFORMANCE MODEL for comparing two markets	One can compare any two markets (in this case Pure competition and pure monopoly) by comparing differences in market structure conduct and performance. The differences in conduct and performance are due to differences in market structure.	workbook exercise
MARKET MODELS	The pure competition and pure monopoly markets are "model" or "idealized" markets. They are "pure" or "perfect" because they are not real--they conform perfectly to a set of conditions (the market structure) specified in the model. They are useful models because they allow us to explore the effect of complete and no competition when taken to the extreme. This gives insights into the way imperfect markets operate, depending on where they fall on the continuum between the two extremes.	class discussion of questions in workbook.

LESSON 7: TYPES OF IMPERFECTLY COMPETITIVE MARKETS

Lesson Purpose:

This lesson is a prerequisite to the case studies of industries in Lesson 8. It gives students command over the vocabulary used by economists to describe the characteristics which differentiate one type of imperfectly competitive market from another.

The general approach used here is to study real markets by analyzing the effect of market structure (demand and supply conditions) on competitive conduct in the market and on the long-run performance of the market (the efficiency of resource allocation).

We categorize markets into five types according to the degree of market concentration, barriers to entry, and product differentiation. The type of markets ranked from the least to the most monopolistic are:

perfect competition
monopolistic competition
oligopoly with standardized product
oligopoly with differentiated product
perfect monopoly

Generally speaking, the degree of monopoly power of the big firms in an industry increases as concentration, barriers to entry, and degree of product differentiation approach the conditions of perfect monopoly.

By completing a rather long program students:

1. Learn how to classify real markets into three types of imperfectly competitive market types on the basis of three demand and supply characteristics.

2. Survey some facts about specific U.S. industries and about market concentration in the U.S.

Lesson 4 Summary: (continued)

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
MARKET PERFORMANCE (long-run Effects of Competition)	Because of the high degree of competition a purely competitive market adjusts quickly to changes in supply or demand by expanding when there is an increase in demand, contracting when there is a decrease. Furthermore, the long-run tendency is for price to equal per unit cost, for profits to be just enough to induce firms to produce but to keep others from entering production, for firms to produce at the most efficient level of production.	

LESSON 5: THE LONG-RUN PERFORMANCE OF PURE MONOPOLIES

Lesson Purpose:

In this lesson students learn the long-run effects of monopolies--the seller can make permanently higher profits by restricting output; the profit rate depends on the existence of substitute products (the elasticity of demand) and the ability of the monopolist to prevent other competitors from going into competition in the monopolized market.

The lesson is organized around two exercises which allow students to explore the operation of a monopoly market--the behavior of a monopolist in setting price and in controlling competition.

In one exercise students are given data on the monopoly firm's cost of production at different levels of output and on the market demand; they are asked to figure out the firm's supply curve and the market price and quantity sold. Through this procedure students will discover that the monopolist can set price or set the quantity sold, that if the firm is acting rationally it should set the price to get maximum profits, and that the firm can continue to make these excessively high profits because there is no competition to increase supply and thereby force price down.

Lesson 7 Summary:

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
MARKET STRUCTURE Market Concentration Barriers to Entry Product Differentiation Price Elasticity Growth in Demand	1. The industry competitive conditions are determined by demand and supply conditions. There are five major ones.	Program
TYPES OF MARKET Perfect Competition Monopolistic Competition Monopolistic Competition Oligopoly, type 1 Oligopoly, type 2 Perfect Monopoly	2. Markets can be categorized by the degree of competition or monopoly power of large sellers.	

Lesson 8: INDUSTRY CASE STUDIES

Lesson Purpose:

In this lesson students study the structure, conduct and performance of three industries: primary and fabricated aluminum products, automobile manufacture, and telephone service.

These case studies can provide several kinds of experiences for students. From them students should gain familiarity and an understanding of how American industry and markets really work: 1) they should see that the structure (supply and demand conditions) of an industry determine the competitive conduct and long-run efficiency of the industry; 2) they should learn how to predict industry conduct and performance from knowledge about industry structure; 3) students discover some basic generalizations of oligopoly market theory (the long-run performance, efficiency, of these industries); 4) they should learn the facts about government-business relations in the industries studied and draw some tentative conclusions about the effect and effectiveness of government action in these markets.

Lesson Purpose: (continued)

Finally, this lesson can provide students with insights about businessmen's skills, motivations, and behavior. Students can learn or start to see how market competition really works to determine price or product quality through a simulation of industry market conditions at a particular period of time. In this way the class can analyze what businessmen do and how competitive conditions force them into these general action patterns.

At the completion of this lesson students should arrive at some of the following conclusions about the U.S. market system:

1. Competition differs between industries because of widely differing market conditions (market structure).

2. Oligopoly markets are important in our economy because of the importance of mass production and because of the history of competition in specific industries.

3. The market structure which is best for the public in a given industry depends to a large extent on the nature of the product and on the most efficient methods of producing it.

4. Although monopoly and oligopoly markets have similar market structure characteristics, there are substantial differences in market conduct and performance. Oligopolist competitors must recognize the impact of their actions on their rivals and thus on the market as a whole.

5. Because nonprice competition is very important in selling a differentiated product in oligopoly markets, there is a considerable difference between the conduct and performance of type 1 and type 2 oligopolies.

6. The justification for government intervention in markets is to promote competition and to protect competitors from the market power of powerful industry leaders.

7. Government intervention can effect either market structure or conduct. The most effective way to effect a permanent change in industry conduct and performance is to alter industry market structure. However, this is not always possible or easy to do.

Lesson 8 Summary:

CONCEPTS, THEORIES, & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
Analytic MODEL for Studying Industries	1. Industries are studied by getting and analyzing data on their structure, conduct, and performance.	Readings & workbook, overhead transparencies
OLIGOPOLY MODEL MARKETS Structural Characteristics Concentration Barriers to Entry Product Differentiation Demand Elasticity Demand Growth & Stability	2. Oligopoly markets have the following characteristics: 1) a small number of firms which dominate the market 2) significant barriers to entry 3) type 2 oligopolies sell a differentiated product; type 1 sells a standardized product.	Industry Case Studies: Aluminum, Automobile, Telephone. Small groups study industries. Class compares industries. Class forms hypotheses about oligopoly performance.
Conduct Characteristics Price Competition Price Collusion Price Discrimination Price Leadership Price Flexibility	3. In oligopoly markets there is very little price competition because it can result in "Price wars." Instead, prices are set by price leaders who may set price to maximize their own profit. Prices are quite stable and there may be price discrimination.	Groups study government intervention in these markets.
Non-Price Competition	4. Type 2 oligopolies engage mainly in non-price or product competition--aimed at increasing their share of the market and reducing demand elasticity. Main forms include model changes and advertising. This often requires large research and development expenses.	

Lesson 8 Summary: (continued)

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
Coercion of Competition	5. There is a great incentive to eliminate competition in oligopoly markets and several techniques can be used to do so, most of which are illegal: price cutting, price discrimination to divide up the market into a group of monopoly regions, formation of holding companies to buy interests in competing firms, etc.	
PERFORMANCE Profit rate; Price Flexibility; Efficiency of Production; Rate of Innovation; Advertising or model change costs; Rate of entry of new firms	6. In oligopoly markets there can be a long-run excess profits, price changes are infrequent; there may be excess capacity so that firms are not producing at their most efficient level of output. The rate of innovation may or may not be high. Entry of new firms is infrequent. In type 2 oligopolies there are high advertising, selling, and model change costs.	
FORMS OF GOVERNMENT INTERFERENCE IN MARKETS Antitrust action Public Regulation		Discussion of the need for government intervention using case studies and readings: "Degree of Concentration in American Industry," Milton Friedman, Michael Harrington, "The Cold Decadence".

LESSON 9: INCOME DISTRIBUTION

Lesson Purpose:

This lesson describes income distribution in the U.S.A according to functional shares (the contribution which each factor of production makes to production) and size of family income. It allows the student to apply the theory of the market to explain income inequality, changing trends in income distribution, and poverty and its cures.

The lesson materials present statistical data on income distribution in the U.S. which provide a data base for the study of the above problems. Students learn to use this data to study causes and effects of the character of income distribution, thereby giving them more information about and insights into this major economic issue, at the same time giving them skill in reading, constructing and interpreting statistical tables and graphs.

Lesson 9 Summary:

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
DISTRIBUTION DECISIONS	1. Income is distributed according to how to whom decisions are made, i.e., by 1) virtue, 2) equality, 3) need, 4) contribution to production.	
NATIONAL DISTRIBUTION OF INCOME by functional shares	1. In market economy, income is mainly distributed through income earnings from contributing factor inputs (natural & capital) to production. 2. Functional distribution of income is defined as the shares of income earned by each category of input (factor of production): labor income (wages & salaries; property income (rent, interest, profits).	Workbook: Exercise 1 Exercise 2

Lesson 9 Summary: (continued)

CONCEPTS, THEORIES & ANALYTIC MODELS	IDEAS	STRATEGIES & MATERIALS
PERSONAL DISTRIBUTION OF INCOME	1. The distribution of income to families is shown statistically by identifying the percent of families falling into different income classes. 2. When social characteristics of the population are correlated with income classes, it enables one to draw a social profile of the poor, the rich, and the middle class.	Workbook: Exercise 2
ECONOMIC GROWTH, SOCIAL CHANGE & PERSONAL INCOME DISTRIBUTION	1. From 1900 to 1960, income distribution has approached closer to the ideal of equality. 2. The approach to equality has been caused by the changing economic, social and political organization of the United States.	Workbook: Exercise 4 Read & discuss text & readings

LESSON 10: POVERTY IN THE U.S.A.

Lesson Purpose:

This lesson gives students a chance to apply the principles of market operation introduced in lessons 1, 3 and 9 to an analysis of the causes of and possible solutions to poverty in the U.S.A.

The student activities should be organized to permit them to analyze the need for, function and effectiveness of alternative government programs to eliminate or alleviate poverty. In this course students should be concerned primarily with the economic aspect of poverty, the factors which create low income groups and the possible changes in economic organization which might eliminate these conditions.

Lesson Purpose: (continued)

The major question which students must try to answer is this.

What conditions in our economy create and perpetuate poverty (low income or non income earning households)?

Students should try to apply what they have learned in Units I and II to form hypotheses about how our economy creates low income classes of people. Students should be able to organize this project themselves by breaking down this big question (posed by the instructor) into a series of smaller questions, tentative answers to which will help them gain insights into the poverty problem and its possible remedies.

Students should base their study on empirical evidence as much as possible. They should get around to asking these questions and looking for empirical evidence to form tentative answers.

1. Who are the poor?
    a. What groups of people are poor?
    b. How do they differ from the rest of the population?

2. What are the disadvantage of being poor? How do they differ with respect to:
    a. consumption patterns
    b. employment record
    c. property ownership

3. In our society, what causes poverty (low or no income)?
    a What causes low incomes in a market economy? In our market economy?
    b. What personal traits do low income earners have?
    c. In our society what determines who has these traits?

4. What effect does the existence of poverty (low income groups) have on economic freedom, justice, progress, stability and security?

5. What current or proposed government programs affect poverty?
    a. For each program, identify the purpose of the program.
    b. What generalizations can you make about the two or three types of program? 1) what are the major types of programs? 2) do you favor all or any of these types of programs?
    c. For each program you study, 1) determine how effective it is in serving its function, 2) try to analyze what makes the program effective or ineffective.

Lesson Purpose: (continued)

6. Which programs are most controversial? Why?

The lesson readings provide most of the information needed to answer these questions, at least, tentatively. The major threads of analysis are already presented in the original essay on poverty. The remaining readings describe various government programs or give human interest accounts of the effects of poverty. Students should discover that government programs are designed to subsidize the poor or to change labor market structure to increase their training or job opportunities, that long run solutions require the structural changes in labor market demand and supply conditions which will provide incentives to the poor to enter and remain in the labor force.

TENTATIVE OUTLINE FOR UNITS III AND IV

UNIT III, Macroeconomics Applied to the U.S. Economy

Content	Materials
Lesson 1: Historical Record of the Growth and Stability of the U.S. Economy	
1. 100 year growth in national wealth, GNP, and productivity.	readings, program,
2. Measurement of the performance of the total economy; operational definitions; measurement errors; use of index numbers for comparison, for measurement of price levels, and to deflate value data.	transparencies readings
3. Measurement of Aggregate input and Productivity: population, labor force, unemployment rates; national wealth, capability utilization; total productivity and labor productivity.	
Lesson 2: Measurement of Aggregate Output and Income	
1. Gross National Product and its components	Program, workbook exercise
2. Gross National Income and its components	
Lesson 3: A Model of National Income Determination, its Implications for Government Policy	
1. Aggregate demand	program, transparencies and workbook exercises
2. The multiplier model	
3. Model of National Income Determination--the automatic adjustment of aggregate demand and supply, another application of the cybernetics model	
4. Long-run Full Employment, Automatic adjustment and the effect of Government Fiscal Policy on promoting long-run performance	workbook exercises
Lesson 4: The Money Supply and Its Effect on Performance of the Economy	
1. Bank creation of money, multiple expansion of money supply	program
2. The effect of the quantity of money on aggregate demand and the level of economic activity	program
3. Description of the major functions of the Federal Reserve System in controlling the supply of money	readings and workbook exercise

Content	Materials
Lesson 5: Case Studies of the Use of Monetary and Fiscal Policy to Promote Growth and Stability.	
1. Case studies of three post World War II periods.	readings
2. Recommendation of Effective Policies for each period and comparison with actual policy.	
3. Comparison of the periods to make general hyposteses about the usefulness and advisability of employing monetary and fiscal policy to promote growth and stabiltiy.	
Lesson 6: Issues in Monetary and Fiscal Policy	
1. Tax structure	readings
2. The size of the public sector and debt management.	
3. Automaticity vs. economic planning	
Lesson 7: International Trade, Its Relation to the Performance of the Economy	
1. The multiplier effect of Importa and exports.	workbook exercise
2. The balance of payments and the effect of international transactions on the economy.	programs, readings
Unit IV, Comparative Economic Systems	
Lesson 1: Comparing Economies	
1. A model for studying the structure and performance of an economy: a comparison of the society's goals and performance.	
2. Problems of comparing economies with different national goals and values.	readings
Lesson 2: The Structure and Performance of Developing Nations, the Function of Planning.	
1. Case studies of the development problems of three developing nations: Nigeria, India, Brazil.	readings
2. Development of policies for a development plan, comparison with actual planning policies in the country.	readings

Content	Materials
3. Comparison of the three economies to derive hypotheses about the general factors determining growth and affecting development potential in underdeveloped countries.	
Lesson 3: Planned Industrial Economies: U.S.S.R. as a Case in Point.	
1. Evolution and growth record of the Soviet Economy	readings
2. Major economic policy problems	readings
3. Progress, stability, justice, freedom, security in the U.S.A. and in Russia; a comparison of goals and social organization.	readings

APPENDIX C

ANALYSIS OF EXAMINATION QUESTIONS & STUDENT ACHIEVEMENT

SPRING 1966
COURSE TRIAL

TEST 101 on Unit 1, Lessons 1, 2, 3 *

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
1.	Economists distinguish between needs and wants. This distinction was made in lesson one by categorizing wants as:					
	a) psychiatric and physiological	1-1	1.1	2.2%	-.23	H
	b) mental and unsatisfied			1.8	.0	
	c) psychological and physical			*92.5	.31	
	d) physical and scarce			3.3	.32	
2.	Which of the following is clearly an example of psychological wants?					
	a) love	1-1	1.2	*85.7	.42	H
	b) food			4.1	.38	
	c) transportation			5.2	.0	
	d) a rifle for a prisoner			4.5	-.35	
3.	Which of the following is clearly an example of physical want?					
	a) love	1-1	1.2	4.6	-.35	H
	b) third car			6.8	-.40	
	c) beach cottage			3.0	-.25	
	d) clothing			*85.1	.48	
4.	Why are psychological wants usually not permanently satisfied?					
	a) They keep recurring, for instance, one must eat every day.	1-2	1.2	4.2	-.20	H
	b) As one is satisfied, desire for a new one is created.			*86.1	.33	
	c) We use up the item that satisfied the want.			2.7	-.30	
	d) People need different things at different times in their lives; for instance, a baby's diet is nearly all milk while older people have a more varied diet.			6.4	-.19	

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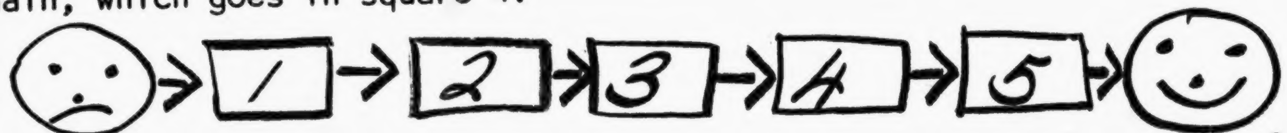
*See page 74 for analytic technique used.

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
5.	Which of the following is the best statement about why physical wants are not usually permanently satisfied?					
	a) A few hours after eating, we get hungry.	1-2	1.2	*48.0	.50	
	b) Clothes styles change continually			5.3	-.40	
	c) Most of us have ambition; when we reach one goal, we set ourselves another.			30.5	-.36	
	d) Living standards in the U.S. keep going up.			15.8	-.13	
6.	In this diagram of the want satisfaction chain, which goes in square 4? 	1-3	1.2			
	a) wants			.8	.0	H
	b) production			1.8	.0	
	c) distribution			*83.7	.62	
	d) consumption			13.4	-.55	
7.	In the above diagram which of the following goes in square 2?					
	a) resources	1-3	1.2	10.6	-.15	H
	b) production			*81.3	.34	
	c) outputs			6.7	-.46	
	d) distribution			1.1	-.11	
8.	In the want-satisfaction chain inputs mean the same thing as:					
	a) outputs	1-3	1.2	1.4	-.23	
	b) goods and services			12.4	-.45	
	c) factors of production			*54.4	.38	
	d) capital			19.2	-.20	

TEST 101

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
9.	As defined in this course which of the following is inputs:					
	a) carpenter's labor	1-3	1.2	*87.5	.26	H
	b) Ford car			2.0	- .23	
	c) alarm clock			2.0	- .24	
	d) dinner			7.6	- .12	
10.	As defined in this course, which of the following is both inputs and output?					
	a) your Honda	1-3	1.2	3.8	-.30	
	b) farm tractor			*75.3	.60	
	c) a straw hat			2.3	-.23	
	d) evergreen forest			18.4	-.55	
11.	As defined in this course which of the following is an output?					
	a) doctor's prescription	1-3	1.2	*62.5	.37	
	b) fish in the ocean			8.2	-.37	
	c) driving a truck			15.4	-.03	
	d) studying for this examination			12.8	-.36	
	For the following three questions indicate whether, with the information given, the thing is a scarce resource.					
12.	Sea water for a resident of Las Vegas:					
	a) yes	1-4	2.2	71.3	-.09	
	b) no			8.9	-.26	
	c) can't tell			*12.9	.03	L
	d) ?			.4	.0	

TEST 101

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
13.	Sea water for a man in a sailing boat in the Pacific ocean.					
	a) yes	1-4	2.2	3.8	-.30	
	b) no			*91.1	.26	H
	c) can't tell			4.2	.0	
	d) ?			.4	.0	
14.	Air conditioners for Alaskan Eskimoes' igloos:					
	a) yes	1-4	2.2	33.1	-.29	
	b) no			*43.3	.23	L
	c) can't tell			22.2	.08	
	d) ?			.5	.0	
	For each of the following questions (15,16,17) decide whether the example shows a way in which the scarcity problem might be solved.					
15.	A prospector discovers large deposits of titanium ore:					
	a) yes	1-5	2.2	*63.2	.26	
	b) no			12.7	-.29	
	c) can't tell			22.8	-.08	
	d) ?			.7	.0	
16.	Surplus coffee beans are dumped in the ocean:					
	a) yes	1-5	2.2	11.7	-.43	
	b) no			*77.0	.28	
	c) can't tell			10.4	-.07	
	d) ?			.4	.0	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
17.	A young boy looses his craving for sweets.					
	a) yes	1-5	2.2	*49.7	.48	
	b) no			25.5	-.47	
	c) can't tell			23.6	-.13	
	d) ?			1.0	.0	
18.	Productivity ratio. A factory uses 2 tons of steel, 12 man-hours, and 4 machine hours to produce 56 filing cabinets. What is the productivity ratio for steel?					
	a) 28 cabinets/ton	2-1	2.2	*67.6	.57	
	b) 36 cabinets/ton			8.4	-.46	
	c) 14 cabinets/hr.			13.4	-.48	
	d) 4 2/3 cabinets.			8.9	-.37	

The next four questions involve comparing the efficiency (productivity) of two companies.

Company A and Company B both make widgets. Company A has a modern factory with all the latest machinery and 60 percent of its employees are women. Company B has an older building, does more work by hand and only 10 percent of its employees are women. Other data:

	Company A	Company B
Output	6000 widgets per week	2000 widgets per week
Inputs materials	2 tons plastic at $450 per ton	1000 lbs metal at $35 per 100 lbs.
machine time	200 hours at $10 per hour	40 hours at $9 per hour
labor	400 man-hrs. at $2.50 per man/hr.	200 man-hrs. at $3 per man-hour
building	$600 per week	$190 per week

TEST 101

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
19.	What is the machine productivity for Company A?					
	a) $2000	2-1	3.0	16.9	-.31	
	b) 600 widgets/$1			16.9	-.21	
	c) $10/hour			12.9	-.43	
	d) 30 widgets/hour			*50.7	.51	
20.	What is the labor productivity for Company B?					
	a) 10 widgets/man-hour	2-1	3.0	36.5	.15	
	b) 3 1/3 widgets/$1			17.3	-.08	
	c) both a and b			*17.8	.20	L
	d) neither a nor b.			26.0	-.19	
21.	Which company is the more efficient?					
	a) A	2-2	3.0	52.3	-.29	
	b) B			21.9	-.03	
	c) same			*18.9	.41	L
	d) neither			5.2	.0	
22.	What is the total productivity of Company B?					
	a) $1.33/widget	2-2	3.0	13.9	-.03	
	b) 1.33 widgets/$1			47.5	.18	
	c) 75¢ widget			*19.5	-.03	L
	d) .75 widgets/$1			15.9	-.13	
	The next three questions give examples of specialization. Indicate whether they show: a) resource specialization b) division of labor c) use of capital d) combination of A,B, &/or c.					
23.	A factory installs a new assembly line system which uses computers and computer technicians.					
	a)	2-3	2.2	6.8	-.40	
	b)			12.0	-.36	
	c)			35.4	.04	
	d)			*45.4	.18	L

TEST 101

Q.# Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
24. A doctor confines his practice to the treatment of children.					
a)	2-3	2.2	*52.6	.06	
b)			34.2	.07	
c)			3.7	-.23	
d)			8.7	-.04	
25. A worker fastens on heels in a shoe factory.	2-3	2.2			
a)			8.3	-.34	
b)			*76.8	.51	
c)			3.1	-.30	
d)			10.5	-.40	

Alternative costs and Comparative Advantage

Secretary	Output/minutes (words)	
	Typing	Shorthand
A	60	80
B	50	100

Q.# Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
26. What is the relative efficiency of secretary A as compared to B in typing?					
a) 1.2	2-4	3.0	*62.3	.40	
b) .83			10.4	-.16	
c) .6			2.6	-.26	
d) none of these			24.4	-.36	
27. What is the alternative cost of using A as a typist?					
a) 80 words shorthand	2-4	3.0	*46.9	.52	
b) 100 words shorthand			11.2	-.38	
c) 60 words typing			14.0	-.59	
d) none of these			26.7	-.12	L

TEST 101

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
28.	To get maximum output, A should work full time at:					
	a) typing	2-4	2.2	*81.6	.49	H
	b) shorthand			14.9	-.50	
	c) either one			2.0	-.26	
	d) ?			.7	-.11	
29.	As a typist A has					
	a) comparative advantage	1-5	2.2	25.2	-.36	
	b) absolute advantage			*45.1	.04	L
	c) neither			5.3	-.32	
	d) both			23.8	.36	
30.	As a typist B has					
	a) comparative advantage	1-5	2.2	26.3	-.30	
	b) absolute advantage			9.0	-.37	
	c) neither			*60.4	.39	
	d) both			3.8	-.06	
31.	Which of the following is the best description of diminishing returns?					
	a) When one input in a production process is fixed, only a fixed amount of output can be produced per day.	2-7	2.3	4.4	-.31	
	b) To increase output from a production process, it is necessary to increase all inputs proportionately.			10.2	-.36	
	c) Additions to output are less for each additional unit of one given input.			*43.3	.42	L
	d) After diminishing returns set in, output declines for each additional unit of one given input.			41.8	-.22	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
32.	The following table shows the output which can be produced from a shirt factory using different amounts of workers. When does diminishing returns set in in this example:					

labor input (man-hours per day)	output # shirts per day
0	0
10	100
20	250
30	375
40	475
50	550
60	550
70	540

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
	a) When labor input increases from 20-30 man-hours.	2-7	2.2	*33.9	.43	L
	b) When labor input increases from 30-40			16.3	.03	
	c) When labor input increases from 40-50			15.5	-.11	
	d) When labor input increases from 60-70 man-hours.			33.9	-.43	
33.	Why are there diminishing returns in the example above?					
	a) because labor is scarce	2-7	1.2	3.1	-.12	
	b) because some other input in the production of shirts is scarce			*23.3	.37	L
	c) because some workers are better than others			43.1	-.06	
	d) because of all of these factors			30.1	-.27	

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Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
34.	Alternative cost is:					
	a) the cost of producing some good or service by an alternative method	2-6	1.1	14.6	-.29	
	b) the output that could have been produced if an input had been put to another use.			*56.7	.48	
	c) the cost of an output if figured in the money of another country			2.5	-.23	
	d) the cost of producing an output figured in cost per man-hour.			18.4	-.40	
35.	A company produces 1000 units per week of its product for an input of 1000 man-hours. It adds 200 man-hours per week and production rises to 1150 units per week. This is an example of:					
	a) increased productivity	2-7	2.2	38.8	-.33	
	b) diminishing returns			*54.9	.46	
	c) absolute advantage			1.8	-.23	
	d) specialization			4.2	-.35	
36.	Which of the following is the most complete definition of exchange as used in this lesson?					
	a) the outcome of specialization	3-1	2.2	5.6	-.14	
	b) the trading of goods for money			21.8	-.42	
	c) transporting assets from one place to another			3.5	-.25	
	d) the trading of one asset for another			*68.1	.45	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
37.	Which of the following is the most exact explanation of why exchange takes place:					
	a) It is a necessary consequence of specialization of production	3-2	2.2	*13.5	.38	L
	b) people have more money to spend these days			1.8	-.23	
	c) Exchange satisfies wants			30.1	-.27	
	d) an individual cannot produce all the things he needs			53.8	.0	
38.	Which of the following is false?					
	a) metal money is more useful than paper money	3-3	2.2	*70.7	.39	
	b) money helped to make exchange more efficient			5.4	-.37	
	c) the increased efficiency of money exchange			11.7	-.27	
	d) money has developed into more and more efficient forms with the growth of specialization			11.2	-.19	
	For each of the following three questions, decide whether the statement primarily describes a) a function of money b) a quality of money c) neither					
39.	For an Indian tribe living by the sea, pebbles on the beach would not be a satisfactory form of money					
	a)	3-4/5	2.2	23.6	-.29	
	b)			*45.6	.51	L
	c)			27.8	-.40	
	d)			1.5	-.11	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
40.	Among early traders in the U.S., values of all commodities were reckoned in terms of beaver skins.					
	a) a function of money	3-4/5	2.2	*54.0	.42	
	b) a quality of money			38.8	-.34	
	c) neither			5.4	-.35	
	d)			.3	.0	
41.	By using grain as a commodity money, societies were able to store wealth.					
	a) a function of money	3-4/5	2.2	*41.3	.40	L
	b) a quality of money			38.3	-.19	
	c) neither			18.4	-.40	
	d)			.7	.0	
42.	For an Indian tribe, pebbles on the beach would not be a satisfactory form of money because:					
	a) they are not easily stored or transported	3-5	2.2	5.3	-.35	
	b) they are not scarce			*83.2	.55	H
	c) they are not durable			3.0	-.23	
	d) they are not legal tender			7.1	-.46	
43.	In the U.S. today gold is not money because:					
	a) it is illegal to mine new gold	3-4	2.2	6.0	-.40	
	b) gold is not a store of value			9.3	-.23	
	c) gold coins are not a medium of exchange			*66.3	.40	
	d) gold does not serve any of the functions of money			16.5	-.25	
44.	Which of the following assets are most liquid?					
	a) an apartment house	3-7	2.2	5.2	-.41	
	b) your checking account			4.8	-.30	
	c) a government bond			2.6	-.25	
	d) money			*85.1	.55	H

TEST 101

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
45.	Which of the following most clearly represents income?					
	a) wages paid for a month's work	3-6	2.2	*88.0	.48	H
	b) a new car			2.6	-.30	
	c) the money in your saving account			4.0	-.35	
	d) the money you receive from selling your bicycle			3.7	-.19	
46.	Which of the following is considered an asset by the person or organization mentioned in the example:					
	a) the mortgage on your family's house from your father's point of view	3-6	2.2	6.0	-.40	
	b) the car you own outright			*77.7	.45	H
	c) your father's checking deposit from the bank's point of view			10.9	-.30	
	d) the rent a family pays for living in an apartment			3.0	-.30	
47.	Which of the following types of financial institutions lend money to families by issuing credit cards?					
	a) commercial banks	3-8	1.1	*57.4	.36	
	b) credit unions			30.2	.26	
	c) investment banks			4.2	-.08	
	d) finance companies			4.6	-.25	
48.	Which of the following examples of investment is "real" investment.					
	a) purchase of a new tractor by a farmer	3-8	2.2	*38.8	.52	L
	b) purchase of a government bond			38.6	-.46	
	c) purchase of a farm			17.4	-.11	
	d) purchase by a family of a new T-V set			2.0	-.23	

TEST 101

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
49.	Which of the following represents real capital?					
	a) money	3-9	2.2	26.7	-.13	
	b) corporation stocks and bonds			24.0	-.11	
	c) factories			*34.3	.30	L
	d) virgin forrest			12.0	-.08	
50.	Which of the following forms of credit is the closest substitute for money in the U.S. today?					
	a) demand or checking deposits	3-10	2.2	14.4	.12	
	b) credit cards			*72.3	.14	
	c) short-term bank loans			3.0	-.30	
	d) department store checking accounts			2.5	-.23	

TEST 201 on Unit I, Lessons 4 & 5

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
1.	Every economy has all but one of the following attributes:					
	a) economic activities, five	4-1	1.3	7.3	.19	
	b) allocation decisions, five			*40.1	.29	L
	c) economic institutions to organize economic activity			27.4	-.33	
	d) social forces, three			22.7	-.06	
2.	Which of the following is not one of the basic economic activities:					
	a) saving	4-1	1.1	9.9	-.57	
	b) planning			*85.9	.65	H
	c) exchanging			1.7	-.11	
	d) consuming			.7	.0	
3.	One or more of the following statements is false. 1) the five basic economic activities are saving, planning, exchanging, consuming, investing. 2) The five allocation decisions are what, why, how, how much, to whom. 3) The three basic social forces are tradition, command and the market. 4) Economic institutions organize economic activities.					
	a) one of the statements is false.	4-1	1.3	27.9	-.21	
	b) two of the statements are false.			*55.1	.30	
	c) three of the statements are false.			11.3	-.05	
	d) four of the statements are false.			2.1	.0	

TEST 201

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
4.	All the economic activities are considered economizing because they all:					
	a) are subject to economic analysis	4-2	1.3	10.9	-.13	
	b) are subject to the test of efficiency			17.1	-.49	
	c) involve choices about how to allocate scarce resources to satisfy wants			*53.8	.47	
	d) none of the above			15.1	-.08	
5.	Every economic institution has all but one of the following attributes in common:					
	a) it organizes human activity	4-5	1.2	34.6	-.15	
	b) it is only concerned with making economic decisions			*41.9	.46	L
	c) it functions to economize scarce resources			16.9	-.35	
	d) it functions to help solve the scarcity problem			4.1	-.30	
6.	An economic system is:					
	a) a set of production institutions	4-6	1.2	10.7	-.57	
	b) that part of the political system concerned with economic problems			5.5	-.40	
	c) all the economic institutions in a society and the exchange relations between them			*60.8	.52	
	d) none of the above			20.5	-.15	
7.	All but one of the following is a necessary step in studying an economic system:					
	a) identify major economic institutions	4-8	1.2	4.5	-.35	
	b) describe decision making process of each institution			16.4	-.24	
	c) describe political system			*64.9	.54	
	d) describe forms of exchange between the economic institutions			11.6	-.52	

TEST 201

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
8.	The market is so important in our lives because of all but one of the following:					
	a) the government controls so much of the economy	4-9	1.2	*61.8	.54	
	b) we purchase most of the things which satisfy our wants in the market			4.0	-.30	
	c) many important allocation decisions are made through buying and selling			14.7	-.55	
	d) we sell our services in the market			10.9	-.30	
9.	All but one of the following statements about economic decisions is true:					
	a) they are all necessary because of scarcity	4-3	1.2	11.8	-.15	
	b) they all are designed to help satisfy wants			5.2	-.35	
	c) they all are concerned with allocation of scarce resources			16.8	-.56	
	d) they are all measurable with an efficiency ratio			*63.9	.54	
10.	When all Chevrolet models have names beginning with C, it most likely shows that this decision is primarilly a result of:					
	a) command by the President of General Motors	4-5	2.2	7.3	-.05	
	b) market appeal			22.2	-.13	
	c) company tradition			*67.0	.22	
	d) government demand			.7	.0	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
11.	When the U.S. Office of Education requires non-communist oath from a student who borrows money for college, it is an example of a decision resulting primarily from:					
	a) market demand by students borrowers	4-5	2.2	6.5	-.43	
	b) command by parents of student borrowers			3.2	-.19	
	c) political command of the congress			*79.8	.45	H
	d) tradition of the United States stretching back to the 18th century			7.1	-.34	
12.	All but one of the following is an economic activity:					
	a) breathing	4-1	1.1	*69.2	.43	
	b) eating			1.5	-.11	
	c) driving			26.1	-.37	
	d) working			1.1	.0	
13.	One of the following is primarily an economic activity:					
	a) sunbathing	4-1	2.2	2.1	-.11	
	b) taking a nap			6.5	-.14	
	c) driving to school			*55.5	.04	
	d) giving a party for friends			33.5	.07	
14.	The correct answer in the question above is an example of all but one of the following:					
	a) investment	4-2	2.2	23.8	.03	
	b) exchange			*34.6	.04	L
	c) consumption			13.7	-.17	
	d) production			25.4	.14	

TEST 201

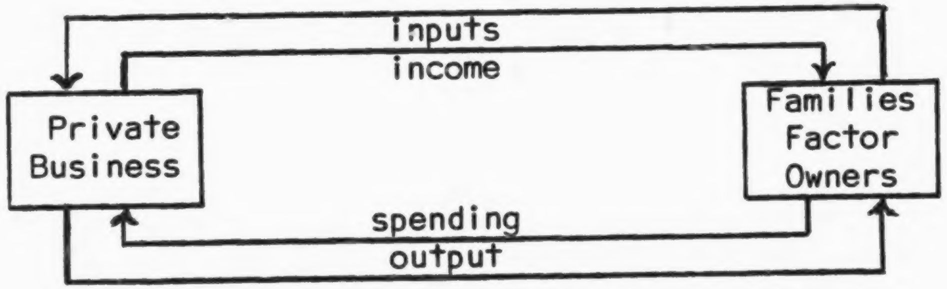
Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
15.	One of the following is primarily an economic institution:					
	a) hot rod club	4-3	2.2	3.8	.08	
	b) Sinatra fan club			2.9	-.12	L
	c) Sunday school			13.4	-.55	
	d) secretarial school			*77.8	.43	
16.	Saving is an economizing activity because:					
	a) we receive moral satisfactions when we save	4-4	1.1	3.6	-.30	
	b) we aren't consuming anything when we save			15.8	-.55	
	c) we are increasing our long-run satisfaction by postponing consumption			*58.4	.55	
	d) we are substituting saving for investment			19.1	-.28	
17.	Investment among the Tsimshian is best represented by					
	a) making ceremonial rattles	4-5	2.2	5.9	-.14	
	b) canoe building			*44.3	.42	L
	c) potlatching			37.7	-.11	
	d) weaving hats			9.6	.57	
18.	The fact that saving in Tsimshian society is usually indistinguishable from investment explains why, in the Tsimshian society:					
	a' there is no saving	4-6	2.2	16.1	-.10	
	b) there is no stock or bond market			*50.9	.22	
	c) there is no private property			29.5	-.09	
	d) there is no great reliance on horses			.9	.0	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
19.	Which of the following is clearly an example in the Tsimshian economy for which savings is distinct from investment?					
	a) local clan group catch candlefish and store grease	4-6	2.2	49.8	.18	
	b) local clan group builds a new house			8.3	-.05	
	c) a member of the local clan group makes a totem pole			15.1	-.45	
	d) chief pays canoe maker for a new canoe with candlefish oil			*24.1	.16	L
20.	Both the Tsimshian and U.S. societies make extensive use of all but one of the following:					
	a) production institutions	4-7	2.2	31.0	-.07	
	b) markets			*22.8	.34	L
	c) specialization of production			12.8	.18	
	d) dress according to taste and custom			31.2	-.26	
21.	In comparing the U.S. and Tsimshian societies, only the U.S. has:					
	a) extensive use of money	4-7	1.1	*82.2	.73	H
	b) command decisions			2.5	-.23	
	c) round about production			4.4	-.19	
	d) production decisions made by tradition			7.7	-.53	
22.	Which of the following is a way in which the U.S. is similar to Tsimshian society?					
	a) money is used widely as a medium of exchange	4-8	1.1	2.4	-.23	
	b) the market system is highly developed			11.6	-.04	
	c) family units are economically self sufficient			21.4	-.14	
	d) many economic decisions are made by command			*61.9	.23	

TEST 201

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
23.	What is the reason economists are interested in studying exchanges between different groups in a society?					
	a) they are interested in studying family ties	4-7	2.2	1.7	-.23	
	b) they are interested in studying the need for government			10.0	-.57	
	c) the exchanges show the dependence of one group on another in solving the scarcity problem			*84.7	.59	H
	d)			1.2	-.11	
24.	Which of the following was an important example of exchange in the Tsimshian economy?					
	a) purchase of salmon	4-9	2.2	11.3	-.19	
	b) trading children for scarce goods			7.0	-.14	
	c) hoarding sea shells and trading them for pebbles			14.9	-.45	
	d) gift giving at ceremonies			*63.7	.50	
25.	Which of the following organizations sell (supply) goods or services in a factor market?					
	a) a department store	5-1	2.2	29.7	-.29	
	b) the U.S. Navy			6.4	-.35	
	c) a labor union			*56.1	.49	
	d) a hospital			6.5	-.35	

TEST 201

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
26.	Which of the following is the most general definition of a product market?					
	a) a market in which goods and services are sold to wholesalers, retailers, or to members of households to satisfy their wants	5-2	1.1	*75.7	.44	
	b) a market in which workers sell their labor services			11.5	-.23	
	c) a place where many different things are sold in an outside market place			8.4	-.37	
	d) an auction where used goods and services are sold to the highest bidder			2.9	-.23	
27.	Which of the following economies can be described by a circular flow diagram labeled and drawn in the way below:  inputs income Private Business Families Factor Owners spending output					
	a) a pioneer village in the U.S. west in which each family provides all of its own needs	5-3	2.2	9.6	-.11	
	b) Mexico today which uses a different currency from the U.S. currency, and which has privately owned industry			*55.5	.55	
	c) a socialist economy which uses money for exchange, but where all factories are owned and operated by the government			20.9	-.47	
	d) all of the above are describe by the diagram			12.0	-.28	

TEST 201

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
28.	Which of the following economic institutions of the U.S. economy is not shown in the circular flow diagram used to describe the U.S.?	5-4	2.2			
	a) banks			8.6	-.09	
	b) stock market			5.7	-.30	
	c) the post office			14.0	-.40	
	d) none of the above are shown			*69.7	.42	
29.	Which of the following types of exchanges which occur in the U.S. are not shown in the circular flow diagram					
	a) government sells bonds to private business	5-4	2.2	*60.8	.49	
	b) a business sells its output to wholesale distributer			16.1	-.20	
	c) a business buys lumber to make houses			7.9	-.19	
	d) a family buys a new car			12.1	-.55	
30.	From the following list of main features of the U.S. economy, choose the one which is not shown in the circular flow diagram:					
	a) specialization has created separate production and consumption institutions	5-5	2.2	12.2	-.40	
	b) the great demands for purchasing power have created specialized forms of credit like credit cards			*62.0	.66	
	c) exchanges are money exchanges			11.8	-.43	
	d) there are two main types of exchanges between firms and families			12.2	-.61	

TEST 201

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
31.	According to the circular flow model (movie) shown in class, GNP = National Income for any given month. Why?					
	a) families pay out all income earned to buy goods and services produced by firms	5-6	2.2	10.7	-.13	
	b) the firms pay out all revenue from sales of output for new inputs			9.9	-.59	
	c) income earned and output produced for a given month are both generated by the same thing--the production activity of that month.			22.9	-.12	
	d) all of the reasons taken together explain why GNP = National Income			*54.9	.45	
32.	GNP is most often measured:					
	a) in the dollar value of output produced for a given period of time because GNP is made up of different kinds of output so there is no standard physical unit of measurement	5-7	1.1	*74.2	.57	
	b) in dollars of income earned at a particular time of day, say, high noon, January 31 of each year			8.2	-.49	
	c) in tons of output produced for a given period of time			4.3	-.35	
	d) to give us a measure of the physical volume of production; in the number of man-hours of labor required to produce the total output produced in a given period of time, because labor is the most standard input			11.8	-.43	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
33.	Which of the following economic activities is not shown in the circular flow diagram of the U.S. economy?					
	a) production	5-4	2.2	2.4	-.23	
	b) consumption			10.2	-.59	
	c) exchange			4.8	-.25	
	d) saving			*80.4	.64	H
34.	The circular flow model (movie) shows a simplified economy operating at a constant rate of output - $280 per month in January. In order for an economy to produce at the same rate of output what would have to be true?					
	a) there is no money exchange in the economy	5-4	2.2	11.9	-.61	
	b) factories are privately owned			6.1	-.30	
	c) the number and size of firms and families must stay the same			*62.0	.58	
	d) there can be no consumption spending in the economy			7.6	-.30	
35.	The circular flow model (movie) is useful in studying the U.S. economy because:					
	a) it shows that the economy is in continuous, circular operation	5-5	1.1	*84.6	.56	H
	b) it explains how firms decide what inputs to buy			2.7	-.30	
	c) it explains how each family decides what goods and services to buy			2.9	-.30	
	d) it explains how fast the economy will grow from year to year			7.5	-.43	

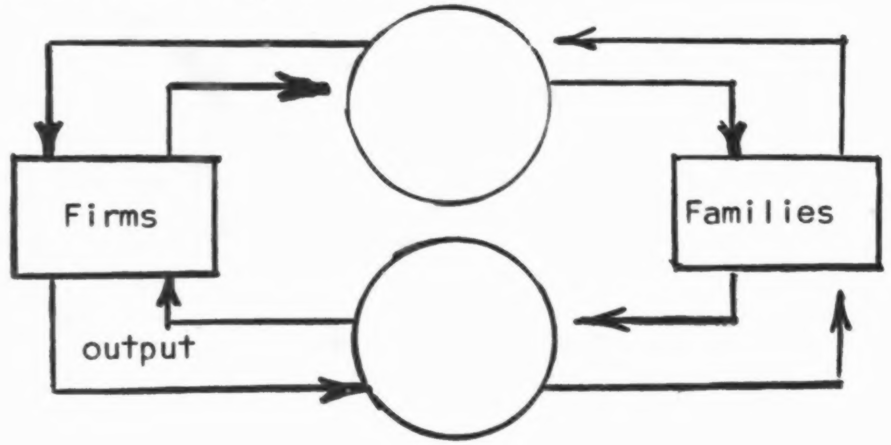
Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
36.	Which of the following statements correctly explains why the circular flow diagram is called a circular flow diagram?					
	a) the diagram (or movie) shows the constant circulation of assets from one family to another as people exchange on form of wealth for another	5-6	1.1	4.0	-.35	
	b) the diagram shows a cycle of exchanges of inputs and outputs between firms and families which produce a constant flow of money income and real goods and services			*68.3	.49	
	c) the diagram shows round-about production, that is, the dependence of businesses on each other for the supply of materials, capital equipment and the construction of buildings and roads			3.1	-.30	
	d) the diagram is a circular flow diagram for all of these reasons			21.6	-.28	
37.	It is important to study the U.S. economy as a total economy					
	a) to learn the way it operates, and how well it operates, to satisfy the wants of all Americans	5-7	1.1	8.5	-.11	
	b) to study the factors which promote growth in per capita income and in GNP from one year to the next			15.8	-.49	
	c) to learn how to control inflation and unemployment for all citizens in the U.S.			3.6	-.30	
	d) for all of the reasons cited above			*70.2	.51	

TEST 201

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
38.	Which of the following things are important to study about the total economy?					
	a) what is the level of total production (output) of the economy for a period of time?	5-8	1.1	19.6	-.30	
	b) how many resources exist and how much of them are being exployed?			4.8	-.35	
	c) both of the above			*62.7	.45	
	d) neither a or b			10.6	-.15	
39.	Macro economics is:					
	a) the study of how families, businesses, and government agencies make economic decisions	5-9	1.1	9.7	-.23	
	b) the operation of the total economy			*41.3	.40	L
	c) both of the above			26.5	-.25	
	d) neither a or b			19.5	-.03	
40.	Which of the following important features of the U.S. economy is shown in the circular flow model (movie)?					
	a) the economy is in operation all the time, production and consumption never stop	5-5	1.1	*73.3	.64	
	b) the importance of investment in capital goods to increase productivity of factories			8.6	-.46	
	c) the fact that families usually save some of their income			12.2	-.62	
	d) the importance of government regulation of economic activity			3.1	-.30	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
41.	Which of the following important features of both the U.S. and Russian economies is shown in both the circular flow diagram and movie model?					
	a) families consume output and firms produce output	5-5	2.2	24.3	-.32	
	b) there are money exchanges between families and firms			9.9	-.40	
	c) both of the above are shown and true for both economies			*53.4	.52	
	d) neither is true for both economies			9.7	-.15	

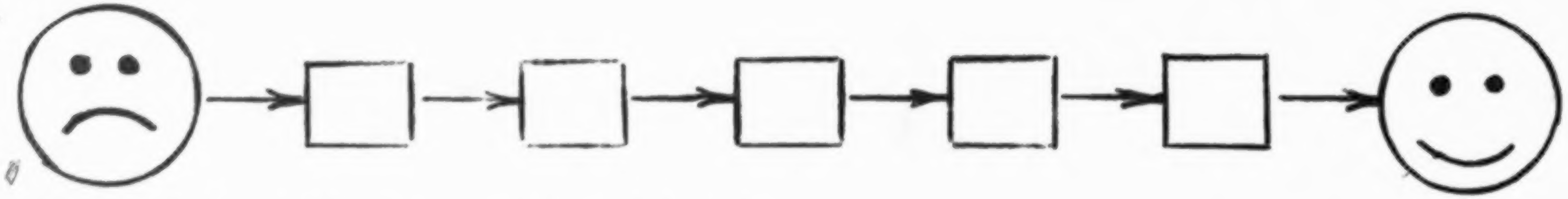
Answer the next five questions, using the circular flow diagram below:



Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
42.	The upper circle represents:					
	a) exchange of inputs for income	5-1	2.1	*43.8	.48	L
	b) product market exchanges			40.5	-.29	
	c) borrowing money			4.5	-.35	
	d) production			8.6	-.37	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
43.	The inside arrows represent:					
	a) the circular flow of real goods and services from families to firms to families, etc.	5-1	2.1	25.4	-.50	
	b) the circulation of money in the economy			*57.4	.60	
	c) specialization of production			3.9	-.35	
	d) the flow of inputs and outputs in the economy for the U.S.			10.0	-.23	
44.	The upper outside arrows represent:					
	a) consumer spending	5-1	2.1	11.2	-.37	
	b) flow of services of land, labor, and capital to firms			*56.3	.64	
	c) income in the form of wages and salaries, profits, rent and interest			20.7	-.62	
	d) exchange which occurs in product markets			8.9	-.19	
45.	If the diagram were a description of the Russian economy, the upper, inside arrows would show:					
	a) the flow of revenue to stores and factories	5-3	2.2	14.0	-.40	
	b) payments of rent, interest, wages and salaries			13.4	-.26	
	c) wage and salary payments			*45.5	.54	
	d) non money income payments			24.2	-.32	
46.	If the diagram were a description of the Russian Economy what functions would families serve in the economy?					
	a) they would own all factors of production	5-3	2.2	2.9	-.23	
	b) they would be the major production institutions in the economy			5.0	-.40	
	c) they would provide the labor for production			*72.5	.40	
	d) all of the above would be correct for Russia			16.5	-.20	

TEST 301 on Unit I, Examination (Lessons I-7)

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
I.	All but one of the following statements about wants is true.					
	a) all wants are either physical or psychological or a combination of both.	I-I/2	I.2	15.9	-.34	
	b) most wants are partly psychological			13.I	.0	
	c) all physical wants are recurring wants.			*63.3	.24	
	d) most psychological wants are never permanently satisfied.			6.5	.0	
2.						
	Which of the following sequences taken from the want-satisfaction chain is incorrect?					
	a) production, output, distribution	I-3	I.2	* 8.6	.05	L
	b) distribution, consumption, satisfaction			10.I	-.26	
	c) wants, inputs, production			9.9	-.52	
	d) none of the above			70.4	.33	
3.	The categories of land, labor and capital belong under the following term in the want-satisfaction chain.					
	a) wants	I-3	I.2	I.4	-.30	
	b) inputs			*8I.8	.49	H
	c) production			I2.2	-.34	
	d) outputs			3.7	-.32	

TEST 301

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
4.	All but one of the following statements about resources is true.	1-4	1.2			
	a) resources are either scarce or not scarce			1.7	.21	
	b) if there is a large amount of a resource it is not scarce			*68.1	-.26	
	c) all scarce resources have value			29.3	-.02	
	d) a resource is scarce if there is less of it than needed to satisfy wants.			.9	.19	
5.	Which of the following is not one of the primary ways societies have used to solve the scarcity problem?	1-5	1.2			
	a) produce more from present resources			5.6	-.34	
	b) reduce the quality of outputs so that people will consume less			*73.5	.41	
	c) increase the amount of resources			8.3	-.06	
	d) redistribute what is produced			12.2	-.40	

6.

BAKERY A					
Number of Employees	2	3	4	5	6
Loaves produced	800	1200	1600	1950	2100

BAKERY B				
Number of Employees	5	6	7	8
Doughnuts produced (doz)	500	600	750	910

4

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
6.	(continued)					

BAKERY C					
Number of Employees	4	5	6	7	8
Weekly receipts	$1000	$1250	$1500	$1750	$2000

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
	Which, if any, is an example of diminishing returns?	2-7	3.0			
	a) A			*69.5	.42	
	b) B			6.9	-.53	
	c) C			6.3	-.38	
	d) None			16.9	-.03	
7.	For the following example choose which type of specialization is involved. A school system builds a new high school building which has classrooms which can be altered in shape and size. This makes team teaching and specialized instruction possible.	2-3	2.2			
	a) resource specialization			10.4	-.05	
	b) division of labor			9.7	-.38	
	c) use of capital			16.4	-.12	
	d) combination of above			*63.0	.35	
8.	Alternative cost is defined as:	2-6	1.1			
	a) the cost of producing alternatives			2.3	.11	
	b) total cost of producing an output alternates with level of output			6.7	-.49	
	c) the cost of producing some given output is the value of other outputs which could have been produced with the same inputs.			*69.0	.59	
	d) the cost per unit of producing the good or service			12.2	-.56	

TEST 301

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
9.	If three men make 24 installation of an air conditioning unit in one eight-hour day, then their labor productivity is expressed as:					
	a) 6 installation/ day	2-1/2	1.3	6.9	-.51	
	b) 24 installation/ 3 day			6.0	-.45	
	c) 1 installation/ man hour			*51.9	.48	
	d. none of the above			34.7		
10.	An example of barter is:					
	a) giving a present to a favorite aunt	3-1	2.2	.7	.0	
	b) exchanging money for a U.S. Savings Bond			11.5	-.33	
	c) mowing a lawn in exchange for a meal			*86.2	.38	H
	d) when the judge gives you the choice of a $1000 fine or 30 days in jail			1.2	-.23	
11.	One of the following statements is false.					
	a) Specialization requires exchange	3-3	1.2	12.0	-.50	
	b) The use of money increased the efficiency of exchange			3.4	-.40	
	c) the use of money exchange lessened the need for production specialization.			*79.2	.58	H
	d) Money is an example of specialization to serve the needs of exchange.			5.1	-.40	
12.	Which of the following qualities must money have in order to function as a unit of account?					
	a) it must be durable or easily replaceable	3-5	1.2	3.4	-.35	
	b) it must be convenient to carry			4.1	-.40	
	c) there must be a standard way of measuring it, e.g., dollars.			*85.5	.36	H
	d) none of the above			6.0	-.14	

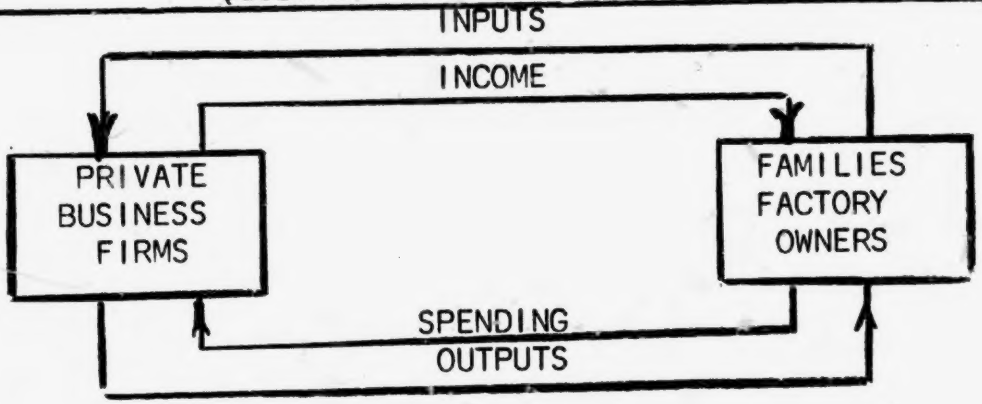
TEST 301

Q.# Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
13. Which of the following is the most liquid asset?	3-8	2.2			
a) a bag of apples			3.9	-.40	
b) 50 Blue Chip trading stamps			3.0	-.19	
c) a ten dollar bill			*90.5	.63	H
d) a 1965 automobile			2.3	-.43	
14. Of the following, which is an example of real capital?	3-9	2.2			
a) a $1 million loan			7.8	-.06	
b) a laundry's shirt ironer			*50.8	.40	
c) a $1000 bond			12.3	-.59	
d) a $10 bill			28.4	-.11	
15. The five basic economic activities have in common all but one of the following:	4-2	1.3			
a) they are economizing activities			7.9	-.40	
b) they involve economic decisions			5.8	-.35	
c) they all involve two or more people			*63.1	.25	
d) they involve conserving scarce resources to satisfy wants			22.2	-.03	
16. The four economic decisions have in common all but one of the following:	4-3	1.3			
a) they are influenced by the forces of tradition, command and/or the market			3.2	-.32	
b) in the U.S. all decisions are market decisions			*78.3	.62	H
c) they involve allocation of scarce resources			11.5	-.43	
d) they are made by individuals and institutions			6.5	-.46	

TEST 301

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
17.	An economic institution has all but one of the following characteristics.					
	a) it is influenced by tradition, command and/or the market	4-4	1.3	7.6	-.46	
	b) it carries out one or more of the five basic economic activities			2.8	-.35	
	c) it makes one or more of the four basic economic decisions			5.8	-.46	
	d) its actions and decisions are independent of other institutions			*83.4	.61	H
18.	All but one of the following is true of an economic system.					
	a) it is composed of all the economic institutions in a society	4-6	1.3	11.6	-.23	
	b) the institutions composing it are related through exchange activities			11.3	-.48	
	c) government is outside the economic system but has a powerful influence on it			*63.5	.66	
	d) its primary function is to provide goods and services for consumption			12.9	-.26	
19.	Which of the following social forces has the greatest importance in determining the standard of living of the majority of American families?	4-9	1.3			
	a) tradition			16.2	-.38	
	b) command			11.1	-.09	
	c) market			*64.9	.50	
	d) state government			7.6	-.53	

TEST 301

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
	 INPUTS INCOME PRIVATE BUSINESS FIRMS FAMILIES FACTORY OWNERS SPENDING OUTPUTS					
20.	Which of the following characteristics of the U.S. economy is shown on the above circular flow diagram?					
	a) the high rate of economic growth	5-2	2.2	1.1	-.30	
	b) the organization of the American family			1.6	-.35	
	c) the large economic role of the government			1.9	-.23	
	d) the exchange relationship between firms and families			*95.1	.51	H
21.	All but one of the following assumptions is necessary in constructing a circular flow model that operates at a constant rate.					
	a) there is no investment	5-4	1.3	25.0	-.14	
	b) output produced per day is constant			11.8	-.06	
	c) population is stable			17.8	-.38	
	d) there is no government			*44.4	.37	L

TEST 301

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
22.	The above diagram is called a circular flow diagram for all but one of the following reasons.					
	a) it shows the cycle which keeps the economy in constant operation	5-6	1.3	7.9	-.35	
	b) it shows that the money flows from earning income and spending are continuous			4.9	-.40	
	c) it shows the flows of factor inputs being transformed into outputs which flow to families and generate new factor inputs			17.3	-.31	
	d) it shows how business firms transform inputs into outputs			*69.0	.51	
23.	Macro-economics is the study of:					
	a) macaroni factories	5-9	1.1	1.6	-.30	
	b) how the total economic system functions			*86.2	.69	H
	c) how exchanges are made in markets			6.5	-.53	
	d) individual firms or labor unions			4.4	-.46	
24.	All but one of the following is a characteristic of the U.S. economy indicated in the above circular flow diagram					
	a) specialization has created separate production and consumption units.	5-5	1.3	25.2	-.24	
	b)there are equal and opposite flows of money			9.3	-.32	
	c) all exchanges of inputs for outputs are direct barter exchanges			*50.6	.44	
	d) total income equals total output for the economy for some given period of time.			14.3	-.18	

TEST 301

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
25.	All but one of the following was listed as a major economic goal in Lesson No. 6.	6-LI	1.2			
	a) freedom			1.2	-.30	
	b) justice			.9	-.23	
	c) serenity			*94.0	.53	H
	d) progress			3.0	-.35	
26.	Which of the following is the most striking example of the exercise of economic freedom?	6-LI	2.2			
	a) employees of a firm go on strike			*88.9	.63	H
	b) a labor union votes for a strike, but the federal government delays the strike for 80 days			3.7	-.43	
	c) a court prohibits workers from striking			2.6	-.23	
	d) the government orders a union and company to accept a solution to a disagreement over wages made by a neutral arbitrator			4.1	-.46	
27.	All but one of the following things is an indication of economic progress	6-LI	2.2			
	a) labor productivity rises by 20% in five years			3.9	-.40	
	b) G.N.P. grows 6.7% in one year			9.0	-.43	
	c) Los Angeles has 7% more smog in 1965 than in 1964			74.1	50	
	d) Teflon-coated ovens are introduced in the home appliance market			12.3	-.31	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
28.	The examples of change in economic activity given in the above question have the following thing in common.					
	a) they are all examples of progress	6-L2	2.2	29.8	-.12	
	b) they all indicate an increase in economic justice as well as freedom			10.6	-.40	
	c) they are all subject to quantitative measurement			*50.3	.39	
	d) they all show how progress causes a decline in economic freedom			8.1	-.30	
29.	One of the following policies is incorrectly categorized as to the goal it promotes.					
	a) social security laws to provide old age benefits -security	6-Pr1	2.2	6.7	-.24	
	b) minimum wage laws requiring businesses to pay workers at least $1.25/hr. -freedom			*76.4	.48	
	c) urban renewal programs to clear slums - progress			1.9	-.30	
	d) full employment -justice			14.6	-.40	
30.	A municipal government invests $40 million in an automated freight loading and unloading equipment in a sea port and eliminates 20% of the longshore jobs in the port. One of the following statements concerning such a policy is false.					
	a) automation speeds progress	6-Pr2	2.2	4.1	-.25	
	b) automation usually leads to greater economic justice			*40.0	.39	
	c) automation can be introduced so that employees' economic security is maintained			37.7	-.09	
	d) when an employer can introduce automated techniques without consulting his employees it is an exercise of his economic freedom.			17.6	-.44	

TEST 301

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
31.	The economic policy, described in question #30 is a good example of a policy that promotes progress but might also impede justice and security. Which of the following policies also promote progress and impedes justice or security?					
	a) reduction of tariff rates on imported textiles	6-Pr2	2.2	12.2	-.28	
	b) removal of price supports on wheat			8.5	-.46	
	c) removal of firemen from the cabs of Diesel train engines			21.7	-.18	
	d) all of the above			*57.5	.46	
32.	All but one of the following statements concerning the relationship between social values, economic goals and economic institutions is correct.					
	a) economic goals shape economic institutions, but economic institutions do not shape economic goals	6-Pr3	2.2	*60.7	.55	
	b) social values determine economic goals			20.3	-.38	
	c) the economic goals of freedom, justice, progress and security are also statements of social values in the U.S.			13.8	-.40	
	d) economic institutions aid in achieving our economic goals			5.1	-.34	
33.	Which of the following statements about the nature of economic conflict is true?					
	a) there is always an ethically correct side of a conflict	6-Pr4	1.3	15.5	-.23	
	b) conflict is an inevitable outcome of scarcity			*70.7	.46	
	c) economic and political conflict are always separate from each other			7.4	-.53	
	d) in the United States our love of justice prevents conflict			5.8	-.33	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
34.	Conflicts in the U.S. are:					
	a) resolved by the courts according to what is ethically right	6-Pr4	1.3	24.7	-.21	
	b) are very largely resolved by market competition			*30.9	.39	L
	c) almost entirely concerned with labor management relations			13.8	-.13	
	d) all a result of the profit motive			21.9	-.08	
35.	Economic policies are all but one of the following:					
	a) theoretical statements about the nature of economic society	6-Pr5	1.3	*58.4	.50	
	b) they deal with the practical economic problems of individuals, families, firms and governments			12.0	-.31	
	c) they are plans of action designed to help achieve given economic goals			11.6	-.23	
	d) the process of making policies often requires the use of economic theory and techniques of analysis to the practical problem			17.1	-.36	
36.	Which of the following is not a step in making a rational decision on a matter of economic policy?					
	a) state the goal you wish to achieve	6-Pr6	1.2	5.6	-.43	
	b) choose the policy which is advocated by the majority of those people interested in the issue			*56.8	.57	
	c) determine that the goal you seek is consistent with your other goals			16.2	-.36	
	d) list the things which limit the policy choices available to you			20.1	-.32	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
37.	Which of the following is not a part of the definition of economics?					
	a) economics is a science	7-1	1.1	1.1	.0	
	b) economics studies human thought			*67.5	.49	
	c) economics studies the relationship between scarce means and ends			6.0	-.23	
	d) economics studies the process of choosing alternatives			24.7	-.45	
38.	Economics is a science that has all but one of the following characteristics.					
	a) it studies natural phenomena	7-2a	1.1	*63.5	.66	
	b) it follows the scientific method			11.3	-.43	
	c) it gathers empirical data			15.3	-.58	
	d) it uses testable theoretical concepts			9.2	-.33	
39.	Economics is a social science which is distinguishable from other social sciences by the fact that:					
	a) it is the study of the alternative uses of power	7-2b	1.2	6.2	-.25	
	b) it studies the interaction of social groups			6.9	-.40	
	c) it studies how social groups make decisions to allocate scarce resources			*57.5	.35	
	d) none of the above			28.2	-.12	
40.	Which of the following topics would mainly be the subject of sociology?					
	a) marriage dances among the Northwest Indians	7-2c&g	2.2	10.6	-.62	
	b) the Constitutional relations between President Johnson and the United States Congress			3.2	-.35	
	c) the relationships between youth groups and adult groups in city poverty areas			*74.4	.56	
	d) the relationships between textile industry employees and employers in poverty areas			11.3		

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
41.	Which of the above topics is mainly the subject of anthropology?					
	a)	7-2c&g	2.2	*83.1	.73	H
	b)			2.3	-.33	
	c)			8.8	-.59	
	d)			4.1	-.46	
42.	Which of the above topics is mainly the subject of political science?					
	a)	7-2c&g	2.2	.7	-.11	
	b)			*89.9	.38	H
	c)			3.0	-.23	
	d)			4.9	-.30	
43.	Which of the four basic economic decisions (what, how, for whom, and how much) would be eliminated if there were no alternative uses for a particular scarce resource?					
	a) what and how	7-2d	2.2	*41.4	.51	L
	b) what and for whom			16.6	.11	
	c) how and how much			21.0	-.51	
	d) for whom and how much			19.0	-.38	
44.	Economics involves a study of institutions for all but one of the following reasons: because they					
	a) organize economic activity	7-2e	2.2	4.8	-.23	
	b) make major economic decisions			6.3	-.46	
	c) are good examples of the way people organize into groups			*79.5	.52	H
	d) are important in shaping our social values and economic goals			7.8	-.34	

TEST 301

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
45.	Which of the following topics is more important in the study of economics?					
	a) production processes in industry	7-2f	1.3	6.5	-.37	
	b) exchange activities between firms			6.5	-.43	
	c) consumption patterns of families			15.3	-.25	
	d) how decisions are made to allocate scarce resources			*69.7		
46.	All but one of the following constitute an economic aspect of having a large family Christmas dinner					
	a) it is necessary to decide on the menu	7.3	2.2	5.1	.51	
	b) there is an exchange of assets, for example, food and various gifts			8.1	-.49	
	c) it is necessary to decide how to avoid arguing with your uncle			*79.9	.68	H
	d) it is necessary to produce the dinner			5.1	-.43	
47.	Economics has two main areas of study.					
	a) science and society	7-4	1.2	9.9	-.52	
	b) exchange and investment			9.0	-.55	
	c) anthropology and sociology			8.3	-.55	
	d) micro and macro-economics			*70.9	.74	
48.	Which of the following is an example of macro economics?					
	a) how the Jones family spends its income	7-4	2.2	10.1	-.37	
	b) how consumers will react to a new type of advertising of Ford Motor Company			14.3	-.49	
	c) how raising personal income taxes will affect total consumer spending			*70.0	.62	
	d) how teenage credit affects the number of used cars purchased in San Francisco			3.7	-.34	

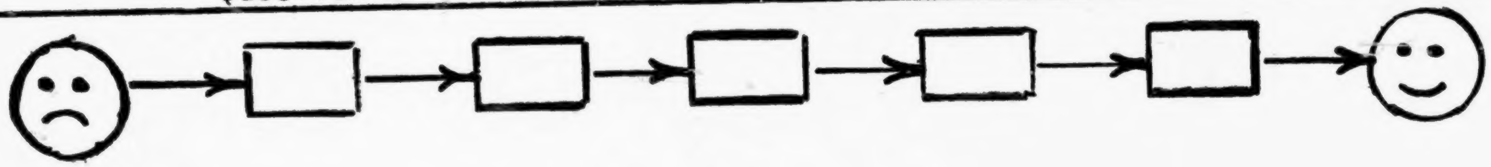
TEST 301

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
49.	When economists deal with increasing our knowledge of the U.S. economy, it is called					
	a) pure economic research	7-5	1.2	*50.4	.51	
	b) macro economics			19.8	-.16	
	c) micro economics			10.8	-.55	
	d) practical research for making economic policy			16.2	-.29	
50.	Which of the following is an example of applied economic research?					
	a) studying the organization of the steel industry	7-5	2.2	8.1	-.15	
	b) studying the reasons businesses invest in a new buildings and equipment program			13.6	-.23	
	c) studying how industrial investment affects the level of G.N.P.			38.3	-.43	
	d) studying how the federal government should use its taxing program to promote full employment			*37.2	.55	L

TEST 401, 501 - Final Examination

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
1.	In this course, the best explanation for the existence of the scarcity problem is the fact that					
	a) societies don't make efficient economic decisions	1-1&2	1.1	4.1	-.08	
	b) not enough people understand the scarcity problem			3.6	-.43	
	c) that wants always exceed resources			*87.4	.62	H
	d) that resources are unlimited and wants are unlimited			5.0	-.43	
2.	All but one of the following statements about wants are false.					
	a) all physical wants are recurring wants	1-1&2	1.3	11.3	.04	
	b) all wants are physical			16.7	-.18	
	c) no wants are ever completely satisfied			9.9	-.51	
	d) all wants are either psychological or physical, or both.			*61.7	.50	
3.	Which of the following statements is not true?					
	a) one reason for the existence of scarcity seems to be that the more we get the more we want.	1-1&2	1.3	1.8	-.30	
	b) resources are limited, wants are unlimited			2.7	-.[illegible]5	
	c) Wants have, for most societies, always exceeded resources.			2.7	-.30	
	d) Resources have, for most societies, always exceeded wants.			*92.8	.53	H

TEST 401,501

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
4.						
	What is the proper sequence of the want satisfaction chain?					
	a) distribution, inputs, production, outputs, consumption.	1-3	1.2	.9	-.11	
	b) inputs, production, outputs, distribution, consumption.			*91.0	.57	H
	c) inputs, distribution, production, outputs, consumption.			1.8	-.30	
	d) inputs, production, distribution, outputs, consumption.			5.9	-.46	
5.	Which of the following terms does not belong under "inputs?"					
	a) goods and services	1-3	1.2	*84.2	.66	H
	b) capital			8.1	-.46	
	c) land			3.6	-.35	
	d) labor			3.2	-.43	
6.	A scarce resource is a resource					
	a) which can be used to satisfy a want	1-4	1.1	.9	.0	
	b) which people want.			2.3	-.35	
	c) for which the amount available is less than the amount wanted.			*91.0	.57	H
	d) none of the above			5.4	-.46	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
7.	Following are four of the five methods societies have used to overcome scarcity: (1) produce more from present resources; (2) increase amount of resources; (3) make outputs more want satisfying; (4) redistribute output. The fifth way is one of the following:					
	a) increase the range of wants so more resources can be used.	1-5	1.2	14.0	.0	
	b) make scarce resources into non-scarce resources			6.8	-.33	
	c) reduce the number of wants			*51.8	.04	
	d) none of the above			25.2	.20	
8.	When a cutter in a garment firm lays his pattern to save cloth, he is helping to solve the scarcity problem by					
	a) producing more from present resources	1-5	2.2	*81.1	.04	H
	b) increasing the amount of resources			.5	.23	
	c) making outputs more want satisfying			1.8	-.35	
	d) redistributing what is produced			3.6	-.43	
9.	Wants, for most people, always exceed resources because					
	a) resources are unlimited and wants are unlimited	1-5	2.2	4.1	-.43	
	b) people do not make efficient production decisions			6.3	-.08	
	c) people do not take full advantage of the law of diminishing returns			5.0	-.35	
	d) none of the above statements are true.			*84.2	.36	H

TEST 401, 501

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
10.	A chef produces 250 steak dinners, using: 100 lbs. prime steak, costing $125 125 lbs. potatoes, costing $ 10 Salad and sundries, costing $ 40 labor $ 75 What is the productivity ratio of the meat used?					
	a) 50¢/steak	2-1	3.0	13.5	-.40	
	b) 2 steaks/$1			28.8	.08	
	c) .4 lb/1 steak			18.9	-.15	
	d) 2.5 dinners/pound steak			*38.7	.28	L
11.	What is the total productivity ratio?					
	a) 250 dinners/pound of steak	2-1	3.0	4.5	-.30	
	b) 2.5 dinners/$1			17.1	-.29	
	c) $1/1 dinner			27.0	-.08	
	d) 1 dinner/$1			*50.5	.33	
12.	Below are three tables showing the dollar costs of producing racing car lubricant XL5, using four different processes. Which process is the most efficient?					

PRODUCTION COSTS PER 100 GALS. FOR LUBRICANT XL5

Process	Raw Materials	Labor per Hour	Cost of production Capital	Cost of production Time	Cost per 100 Gals.
A	$ 10.00	$ 3.50	$500,000	1 hr. 30 min.	
B	12.50	2.28	1,000,000	50 mins.	
C	10.50	4.00	750,000	1 hr. 15 mins.	
D	11.00	2.32	500,000	1 hr. 45 mins.	

TEST 401, 501

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
12.	(continued)					
	a) Process A	2-2	3.0	20.7	.04	
	b) Process B			*34.2	-.04	L
	c) Process C			14.9	-.42	
	d) Process D			27.5	.22	
13.	Below are 3 examples of specialization; indicate which type of specialization it is. Example #1; A firm of fruit growers substitutes plastic packages for wooden ones					
	a) resource specialization	2-3	2.1	*27.9	.23	L
	b) division of labor			.9	-.30	
	c) use of capital			58.1	.04	
	d) combination of above			13.1	-.07	
14.	Example No. 2: A small firm, with one clerk-typist, increases its business and expands its office staff to two persons--1 typist and 1 file clerk.					
	a) resource specialization	2-3	2.1	3.6	-.11	
	b) division of labor			*77.5	.56	H
	c) use of capital			2.3	-.35	
	d) combination of above			16.2	-.45	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
15.	Example No. 3: A school system builds a new high school building which has classrooms which can be altered in shape and size. This makes team teaching and specialized instruction possible.					
	a) resource specialization	2-3	2.1	14.4	-.46	
	b) division of labor			3.2	-.43	
	c) use of capital			9.0	-.04	
	d) combination of above			*73.0	.43	

Suppose that the table below accurately describes the productivity of Brazil and the U.S. in producing coffee and cars. Use this information to answer the next four questions.

Country	output per 1000 man-hours	
	Coffee (1000/s of bu.)	Cars
Brazil	100	20
U.S.A.	25	50

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
16.	For the U.S.A., what is the alternative cost of producing 1 car?					
	a) 2000 bushels of coffee	2-4&5	3.0	10.8	-.04	
	b) 500 bushels of coffee			*44.1	.55	
	c) 20 Brazilian cars			10.8	-.62	
	d) can't tell from the information given.			33.8	-.21	

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Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
17.	This is an example of					
	a. absolute advantage	2-4&5	2.1	*25.7	.44	L
	b. comparative advantage			59.5	-.22	
	c) can't tell			10.4	-.10	
	d)			3.2	-.08	
18.	In this example					
	a) the U.S.A. has an absolute advantage in the production of cars	2-4&5	2.2	*73.9	.38	
	b) the U.S.A. has a comparative advantage in the production of cars			14.0	-.36	
	c) Brazil has an absolute advantage in the production of cars			1.8	-.30	
	d) Brazil has a comparative advantage in the production of coffee.			9.0	-.14	
19.	Of the alternatives given below, what is the most plausible explanation for the different productivity ratios in this example?					
	a) in the U.S., fewer resources are scarce	2-4&5	2.1	3.2	-.30	
	b) Brazil is more dependent on the U.S. than the U.S. is on Brazil			2.3	-.30	
	c) U.S. farming is less efficient than Brazilian farming			20.3		
	d) relative to Brazil, U.S. resources are more efficient in producing cars than in producing coffee.			*73.9		

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Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
20.	What is the primary reason exchange takes place?					
	a) because there is specialized production	3-2	1.3	*63.1	-.22	
	b) to balance the economy			30.5	-.31	
	c) because of the growth of credit			2.3	-.30	
	d) because advertising entices people to buy			3.2	-.43	
21.	Exchange occurs to enable us to satisfy wants. Which of the following is an example of exchange?					
	a) X robs Y of his watch	3-2	2.2	4.1	-.53	
	b) X puts $100 in his safe deposit box at the bank			2.3	-.30	
	c) X buys a steak at the store			*89.2	.48	H
	d) all of the above			3.6	-.08	
22.	Which is not one of the qualities of efficient money?					
	a) durable	3-5	1.1	3.2	-.11	
	b) convenient form			5.4	-.43	
	c) abundant supply			*83.8	.42	H
	d) standardized in form			7.2	-.23	
23.	Which of the following statements is false?					
	a) Insurance companies cannot extend credit	3-8	1.2	*43.7	.29	L
	b) When a merchant charges interest for credit, the rate is often 15% to 20% per year			22.1	-.08	
	c) The less confidence a lender has in a borrower's ability to repay the higher the cost of credit			15.3	-.23	
	d) Credit unions are among the cheapest sources of credit			17.1	-.08	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
24.	Which of the following statements is false?					
	a) A mortgage loan taken out by a homeowner typically has a lower credit cost than does a loan from a pawnbroker.	3-8	1.2	28.4	-.42	
	b) Investment banks provide short-term credit for home owners			*59.9	.69	
	c) When you deposit money in a bank, you are, in effect, providing credit to the bank.			6.8	-.59	
	d) Installment buying is a form of credit.			3.2	-.43	
25.	Which is an example of real investment?					
	a) Purchase of a building lot	3-9	2.2	27.0	-.66	
	b) Purchase of a new office			*38.0	.74	L
	c) Purchase of 20 shares in a company's existing stock.			23.9	-.26	
	d) Purchase of life insurance			9.9	-.57	
26.	Which statement is false?					
	a) Financial capital includes any asset of high liquidity.	3·9	1.2	32.4	.02	
	b) Buying a machine to improve a company's productive capacity is a real investment			9.0	-.35	
	c) Financial investment is the purchase of buildings and equipment.			*34.2	.52	L
	d) If you spend money on getting an education, you are making a real investment.			23.4	-.51	
27.	Which of the following comes closest to fulfilling all the functions of money?					
	a) credit card	3-10	2.2	*84.2	.34	H
	b) charge account			5.0	-.35	
	c) an IOU			2.3	-.08	
	d) S&H Green Stamps			7.7	-.30	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
28.	All but one of the following statements is correct.					
	a) money is an asset	3-6	1.2	18.5	-.23	
	b) the money you have saved is wealth			16.7	-.23	
	c) the money you earn is called income			.5	-.11	
	d) in the U.S.,.there are only two kinds of money: coin and currency			*63.1	.38	
29.	All but one of the following represents purchasing power.					
	a) a Bankamericard with a $500 limit	3-6	2.2	4.1	-.43	
	b) a $5,000 1910 Hupmobile			*88.7	.48	H
	c) a $100 bill			6.3	-.33	
	d) a $1000 deposit in a checking account			.9	-.11	
30.	One of the following is not a major allocation decision.					
	a) why	4-1	1.1	*85.1	.38	H
	b) what			8.1	-.18	
	c) how			5.0	-.46	
	d) how much			1.8	-.11	
31.	All but one of the following statements about why all of the five basic economic activities are economizing activities is true.					
	a) Production transforms resources into more want satisfying forms.	4-2	2.2	1.8	-.23	
	b) The contual need to consume helps keep the scarcity problem important.			18.0	.65	
	c) Exchange involving middlemen is inefficient because the existence of middlemen raises prices.			*70.3	-.64	
	d) Investment increases future output of want satisfying things.			9.9	-.51	

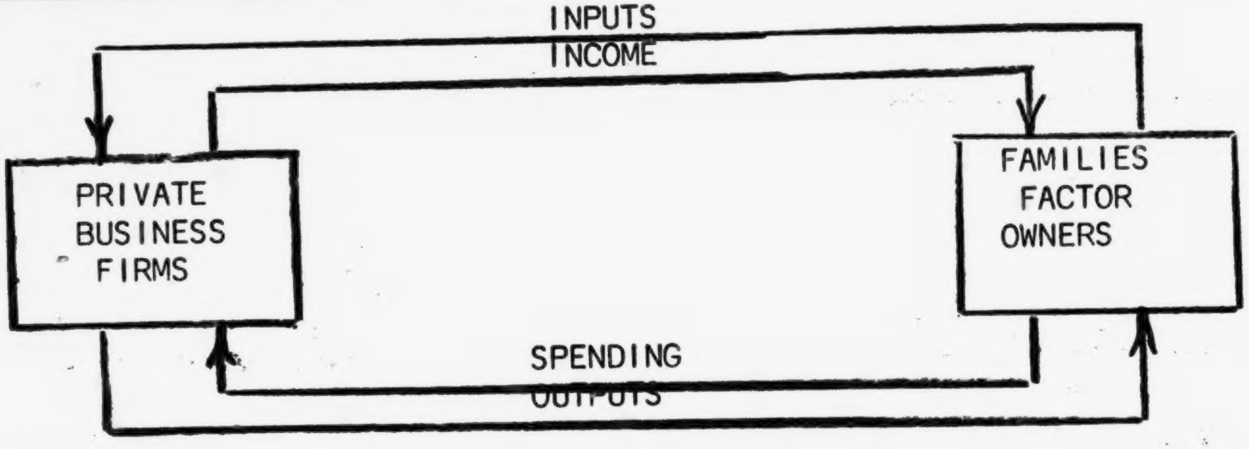
Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
32.	All but one of the following statements is true. An economic institution					
	a) is organized to make economic decisions	4-4	1.3	7.7	-.57	
	b) carries out at least one of the basic economic activities			7.7	-.23	
	c) is always limited to the performance of one economic activity			*66.7	.53	
	d) is an allocator of scarce resources			16.7	-.30	
33.	Economic decisions have all but one of the following characteristics					
	a) they are theoretical, not practical	4-3	1.3	*82.9	.41	H
	b) they all involve the problem of scarcity			5.4	-.08	
	c) they are made to increase satisfaction of wants			2.3	-.35	
	d) some are made by command			8.6	-.46	
34.	The economic decisions of the federal government are primarily decisions made through.					
	a) command	4-5	2.1	*53.2	.62	
	b) market			26.6	-.40	
	c) tradition			6.3	-.53	
	d) none of the above			8.1	-.26	
35.	All but one of the following statements is true. An economic system					
	a) is the way a society organizes to satisfy its wants.	4-6	1.3	5.9	-.46	
	b) is completely separated from the political system.			*74.3	.61	
	c) is all of a society's economic institutions and the exchange relations between them			13.5	-.33	
	d) is the way a society organizes the basic economic activities			5.0	-.30	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
36.	When studying an economic system, it is necessary to study all but one of the following					
	a) the religious ideas	4-8	1.3	*91.9	.62	H
	b) the economic decision making process			2.7	-.37	
	c) the major economic institutions			1.4	-.30	
	d) the major forms of exchange between economic institutions			2.3	-.17	
37.	The market system in the U.S. performs all but one of the following functions.					
	a) provides a means for selling our services.	4-9	1.3	1.4	-.17	
	b) provides for the production of most of our goods and services			5.9	-.47	
	c) makes most decisions concerning our defense needs			*89.6	.59	H
	d) organizes most of our economic exchanges			1.8		
38.	One of the following economic institutions is not primarily affected by the market.					
	a) family	4-5	1.3	.5	-.17	
	b) business firms			.9	-.30	
	c) Trapist monestary			*87.4	.62	H
	d) local government			8.6	-.37	
39.	Which of the three social forces has the greatest influence on the pop record industry?					
	a) tradition	4.5	2.2	3.6	-.17	
	b) command			18.9	-.63	
	c) market			*61.3	.72	
	d) all equally			14.0	-.43	

TEST 401, 501

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
40.	The economic institutions of an economy are related primarily through					
	a) exchange relationships	4-7	1.2	*82.0	.69	H
	b) tradition			5.9	-.50	
	c) command			2.3	-.37	
	d) a desire to cooperate			8.6	-.30	
41.	All but one of the following is true of an economic system.					
	a) it is composed of all the economic institutions in a society	4-6	1.3	2.3	-.17	
	b) the institutions composing it are related through exchange activities			6.8	-.37	
	c) government is outside the economic system.			*81.5	.63	H
	d) its primary function is to provide goods and services for consumption			7.7	-.41	
42.	Which of the following markets is a factor market?					
	a) home appliance	5-1	2.2	5.0	-.43	
	b) used cars			9.9	-.13	
	c) ladies ready-to-wear			7.2	-.41	
	d) land for building a factory			*75.2	.52	
43.	Which of the following is the proper definition of factor market?					
	a) The market for final goods and services.	5-2	2.1	9.9	-.26	
	b) The market for labor services.			9.9	-.08	
	c) The market for the services of the factors of production.			*59.0	.51	
	d) The market for capital.			18.9	-.46	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items



Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
44.	Which of the following characteristics of our economy is described by the circular flow diagram above?					
	a) specialization has created separate production and consumption institutions	5-4	2.2	*75.7	.74	
	b) Federal government control over markets.			2.3	-.43	
	c) stock market influence on investment			1.8	-.17	
	d) business corporation structure			18.5	-.59	
45.	Which of the following characteristics of our economy is not described by the circular flow diagram above?					
	a) exchanges are money exchanges	5-5	2.2	17.1	-.55	
	b) the rate of economic growth			*64.4	.39	
	c) the economy is in continuous circular operation, so that any change in income is also a change in output			.5	-.17	
	d) none of the above			16.7	.0	

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Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
46.	In the above circular flow diagram, total income equals total output for the whole economy for some given period of time. This means that					
	a) National income = GNP	5-6	2.2	*77.9	.68	H
	b) the economy will grow at a constant rate			8.6	-.33	
	c) consumption is always slightly greater in value than output			7.2	-.53	
	d) the government has to spend money in order to keep the economy growing			4.5	-.41	
47.	All but one of the following statements is true for the circular flow diagram above.					
	a) GNP = National income	5-6	2.2	11.7	-.59	
	b) GNP represents money earned by families			*60.4	.65	
	c) Income earned and value of output for any period are generated by the same thing			17.1	-.48	
	d) Production during that period for any given period of time, the money flow to firms equals the total output produced by firms.			9.0	-.06	
48.	GNP and National Income are both measured in money units because					
	a) this is the only possible measure	5-7	1.2	5.0	-.37	
	b) because national income theory makes it necessary			1.8	-.37	
	c) it looks more impressive to measure the dollar value of something			.9	-.17	
	d) it is a way of measuring all output and income by a common unit of measurement			*90.1	.62	H

TEST 401, 501

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
49.	All but one of the following is a necessary step in studying an economic system.					
	a) identify major economic activities and the institutions which carry them out	5-8	1.2	2.7	-.37	
	b) describe how institutions organize economic activities and make economic decisions			2.7	-.37	
	c) describe the way political officials are elected			*90.5	.62	H
	d) describe the exchange relationships between the important economic institutions			2.3	-.17	
50.	When we say GNP = $700 billion in 1965, we mean					
	a) this is the amount of output in existence at the end of 1965	5-1	2.1	21.2	.07	
	b) this is the stock of wealth in existence on a particular day of that year			8.1	-.26	
	c) the economy generated output at the rate of $700 billion per year			*49.5	.48	
	d) this was the amount of money in circulation in 1965			17.6	-.42	
51.	In Unit I, Lesson No. 6, our national economic goals were categorized under four major goals. The first is freedom, and the other three are all but one of the following:	6-1	1.2			
	a) justice			3.1	-.30	
	b) power			*89.2	.57	H
	c) progress			2.7	-.35	
	d) stability			2.2	-.23	

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Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
52.	All but one of the following activities can be categorized under freedom:					
	a) enforcement of civil rights laws	6-1	1.2	13.0	-.55	
	b) changing one's job			3.1	-.40	
	c) paying a fine for violating anti-trust laws			*74.0	.45	
	d) buying an artichoke in a super market			7.6	.04	
53.	Given the two goals of freedom and justice, which of the following activities is conducive to the achievement of both goals?					
	a) civil rights law enforcement	6-1	1.2	*55.2	.59	
	b) auto smog control laws			7.6	-.43	
	c) enforcemnt of fair trade laws			20.2	-.20	
	d) compulsory arbitration of a labor-management dispute			14.3	-.33	
54.	One of the differences between the two goals of freedom and justice and the two goals of progress and stability is:					
	a) only freedom and justice can be considered as national goals	6-2	2.2	5.4	-.30	
	b) any activity which furthers progress also furthers justice			6.3	-.30	
	c) any activity which furthers progress also hinders justice			9.0	-.55	
	d) economic activity promoting freedom and justice are not so easily quantified as are progress and stability			*77.1	.65	H

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Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
55.	Why is economics considered a social science?					
	a) because it deals with theory rather than with the solution of practical problems	7-2	1.3	11.2	-.30	
	b) because economists use laboratory experiments to study economic behavior			4.0	-.40	
	c) because economists use scientific methods to expand our knowledge about one aspect of human behavior			*44.8	.66	
	d) because economics is the study of social behavior of any living organisms which conserve scarce resources in their environment			33.1	-.43	
56.	Which of the following topics would mainly be the subject of economics?					
	a) study of divorce laws in the different states in the U.S.A.	7-2g	1.3	2.2	-.30	
	b) the study of burial rites in different cultures in the world			1.8	-.30	
	c) whether or not to enact further Federal legislation to protect Negro voting rights.			7.2	-.53	
	d) the effect of the level of education on earning power of U.S. citizens			*88.3	.65	H
57.	Which of the above alternatives involves basically an "applied" study?					
	a) a	7-5	1.3	18.8	-.15	
	b) b			22.9	-.23	
	c) c			*34.5	.29	L
	d) d			22.4	.05	

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Q.#	Question	Lesson & B.O	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
58.	Which of the studies described in question 56 involves analysis which could be used by sociologists, political scientists or economists?					
	a) a	7-2g	1.3	*3.9	.24	L
	b) b			10.3	-.15	
	c) c			35.9	-.17	
	d) d			29.1	.27	
59.	Which of the following studies involves studying micro-economics?					
	a) what determines the cost of living in the U.S. for average income families?	7-4	1.3	35.0	-.27	
	b) if unions cause inflation			13.5	-.04	
	c) the effect of an increase in Federal income tax rates on aggregate consumer spending			12.1	-.23	
	d) how automobile prices are established			*37.7	.42	L
60.	In a purely competitive industry, the businesses will not be able to make very high profits					
	a) at all because of the great amount of competition	113/6-9	2.1	34.5	.02	
	b) except for short period of time, because new businesses come into the market and force the price down			*36.8	.25	L
	c) except after they have been in business for a long time and have figured out a special way to keep their customers from buying from their competitors			21.1	-.13	
	d) whenever they produce efficiently			5.8	-.31	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
61.	According to the economic theory presented in this course, what rule do businesses follow in deciding how much to produce?					
	a) they produce the highest output they can with their present buildings and equipment	3/6-6	1.3	3.1	-.40	
	b) they try to produce more than any other business in the industry			2.7	-.30	
	c) they produce the amount of output which allows them to charge the highest markup over cost of production			14.3	-.41	
	d) they produce the amount of output which will bring in the highest total profit			*79.4	.56	H
62.	Knowing what you do about the demand for bread, in a range of plus or minus 10¢ from the usual price, the market demand for bread in the U.S. is probably:					
	a) inelastic--bread is a cheap food staple	3/6-4	2.1	*36.3	.56	L
	b) inelastic--there are no substitutes			35.0	-.23	
	c) elastic--there are many substitutes			18.4	-.42	
	d) elastic--it gets used up immediately			9.4	-.20	
63.	If the price of mink stoles dropped to $25.00, demand at that price:					
	a) would probably be elastic, a small change in price to, say, $22.50.	3/6-4	2.2	29.1	-.34	
	b) would be inelastic, because the demand for mink stoles is inelastic at any price			24.2	-.18	
	c) would probably be inelastic, because a change in price, at such a low price, will not affect the amount sold very much			*28.7	.43	L
	d) would be inelastic because not many people would care to buy such cheap mink stoles			17.0	-.03	

TEST 401, 501

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
64.	If there are four gas stations on one corner, for any one of the gas stations,					
	a) demand would be very elastic	3/6-4	2.1	*34.1	.36	L
	b) demand would be very inelastic			13.9	-.32	
	c) demand would be fixed at a certain volume of sales			5.4	-.30	
	d) demand might be elastic or inelastic			45.7	-.07	
65.	The reason that a business will sell more of what it produces only if the price is higher is that					
	a) at a higher price the business will make greater profit	3/6-2	2.2	35.0	-.33	
	b) it costs more to produce a greater amount of output per day			28.3	-.15	
	c) it costs more per unit (i.e.per skate-board) to produce a larger amount per day			*31.8	.54	L
	d) the firm must build another factory in order to increase production			4.0	-.25	
66.	In a purely competitive market					
	a) all businesses produce similar products	3/6-9	2.1	43.5	-.06	
	b) there must be at least 25 producers			1.8	-.30	
	c) if a producer goes out of business, market supply is essentially unaffected			*38.1	.34	L
	d) it is possible for a few firms to charge a price slightly higher than the market price			15.7	-.30	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
67.	In a purely competitive market, the price is set					
	a) by the most powerful seller	3/6-7	2.1	5.4	-.35	
	b) by a group of the largest sellers			14.7	-.03	
	c) by the buyers			52.9	.03	
	d) none of the above is true			*25.6	.12	L
68.	The market for a product--say for West coast salmon--is a regional rather than a national market, if					
	a) the salmon buying and selling transactions occur in one place	3/6-1	1.2	14.8	-.26	
	b) the salmon is produced mainly in one region			13.9	-.55	
	c) if the buyers and sellers in the market are limited to one region			*57.0	.61	
	d) if there is only one place where the salmon can be found			12.1	-.40	
69.	In a purely competitive market, if the price is higher than the price at which demand equals supply					
	a) there will be an excess amount supplied at that price and sellers will force the price down	3/6-7	2.2	*57.0	.58	
	b) there is excess demand at that price and buyers will compete to force down the price			21.5	-.52	
	c) there is excess supply and new firms will come into the market to force down the price			16.1	-.25	
	d) there will be an increase in demand to offset the excess supply			4.5	-.40	

TEST 401, 501

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
70.	Which of the following are considered demand conditions for, say, shoes?					
	a) buyer's income	3/6-6	2.1	*15.7	.03	L
	b) labor costs			3.6	-.40	
	c) price of the shoes			10.3	-.29	
	d) all of the above			69.1	.25	
71.	If demand conditions change,					
	a) the market price of the product will usually change	3/6-5	2.1	*45.7	.33	
	b) the supply curve will shift			15.7	-.07	
	c) cost of production will increase			4.0	-.53	
	d) all of the above are true			34.1	-.08	
72.	If womens' income rise the probable effect on the lady's clothing market will be:					
	a) under any circumstances there will be an increase in the price of dresses and in the amount of dresses bought	3/6-8	2.2	30.0	.09	
	b) an increase in the price and quantity bought of dresses, assuming supply remains constant			*36.8	.24	L
	c) a decrease in price and an increase in the number of dresses bought			9.9	.50	
	d) difficult to tell, we did not learn to make this kind of prediction this semester			4.5	-.06	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
73.	If labor costs increase, with no change in the demand for lady's dresses:					
	a) dress prices will increase	3/6-8	2.2	44.9	.02	
	b) the quality of dresses will decrease, but the price may remain the same			4.9	-.40	
	c) either a or b may occur; but probably the number of dresses bought will decline			*44.8	.25	L
	d) dress sales and prices will probably increase			5.8	-.43	
74.	Macro-economics is the study of					
	a) large markets	1.5	2.1	31.4	-.27	
	b) aggregate economic activity			*29.1	.54	L
	c) the laws of supply and demand			5.4	-.43	
	d) the basic economic activities			33.2	-.26	
75.	A monopolist					
	a) always makes high profits compared to firms in a highly competitive market	3/6-10	2.2	56.1	.20	
	b) is always protected from competition by some government action, such as a license or tariff			10.3	-.10	
	c) generally earns lower profits if there are close substitutes for his product			*49.4	.0	
	d) earns high profits because he can produce the product more cheaply than any other producer			24.2	-.25	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Student Respond.	Biserial Correlation Coefficient	High/Low Performance Items
76.	In the U.S., monopolies are illegal except in certain special cases. Why?					
	a) to protect the public from paying very high prices.	3/6-10	1.3	14.3	-.63	
	b) to promote more competition and thereby increase the amount of products produced			3.6	-.43	
	c) to prevent businesses from using unfair tactics to run new firms out of business			4.5	-.27	
	d) all the above may be the reasons for the laws which make monopolies illegal			*77.1	.57	H
77.	What is the major industry characteristic which differentiates a purely competitive market from a monopolistically competitive one?					
	a) barriers to entry	11 7-	2.2	21.1	.10	
	b) number of sellers			55.2	.12	
	c) interest in making high profit			13.0	.41	
	d) product differentiation			*10.3	-.06	L
78.	In which industry would you probably find no advertising?					
	a) telephone service	7-	2.2	13.5	-.17	
	b) cotton growing			*82.1	.35	H
	c) airline service			1.3	-.23	
	d) cosmetics			2.2	-.40	

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
79.	Which of the following is an example of the disadvantage to the public of imperfectly competitive markets such as exists in the restaurant business?					
	a) there is usually excess capacity in the industry; too many businesses all producing at less than their most efficient level	7	2.2	*25.1	.19	L
	b) there is not enough variety to allow consumers a real choice			11.7	-.45	
	c) it is very difficult for new businesses to go into business			15.2	.04	
	d) profits are usually abnormally high, the consumer is paying a price which is quite a bit higher than the cost of production.			47.1	.09	
80.	Which of the following goals is least promoted in a perfectly competitive market?					
	a) freedom	3/6-9	2.2	20.6	-.09	
	b) stability			*28.7	.42	L
	c) justice			31.4	-.19	
	d) progress			18.4	-.10	
81.	In a perfectly competitive market, the long-run effect of an increase in demand is					
	a) price rises	3/6-9	2.2	19.3	-.59	
	b) costs decline			13.1	-.09	
	c) profits increase			21.1	-.47	
	d) the number of producers increase			*44.8	.63	L

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Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
82.	In a perfect monopoly market the long-run effect of an increase in demand is	3/6-10	2.2			
	a) price rises			*51.6	.33	
	b) costs decline			7.6	-.43	
	c) new firms enter the industry			9.0	-.14	
	d) the firm will build another factory			30.5	-.11	
83.	Suppose that the following information about ladies' garment manufacturing were accurate: There are 20,000 producers, 1000 firms enter the industry each year, about that number go bankrupt. Gross sales per year average around $100,000 per manufacturer. Knowing what you do about womens' clothes, what kind of market is this?	7-8	2.2			
	a) perfect competition			51.6	.08	
	b) monopolistic			*12.1	-.28	
	c) type I oligopoly (standard product)			21.1	.08	
	d) type 2 oligopoly (differentiated product)			13.9	.04	

WRITE A 15 MINUTE ESSAY ON ONE OF THE FOLLOWING THREE QUESTIONS.

Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
1.	In the light of what you now know about economics, how would you answer the following kind of statement which is often made by people? "The trouble with economics and all of the social sciences is that the issues studied are controversial, and one man's opinion is as good as another's. Economics is theoretical, impractical and unscientific."					
	a)			*9.8	.58	
	b)			37.9	.0	
	c)			18.6	.10	
	d)			32.6	-.36	

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Q.#	Question	Lesson & B.O.	Type Cognitive Process	Percent Students Respond.	Biserial Correlation Coefficient	High/Low Performance Items
2.	a) Define what is meant by a perfectly competitive market.			*30.5	.54	
	b) What would be the advantages and disadvantages of a market system which is perfectly competitive?			27.6	-.17	
	c) Why aren't there many perfectly competitive markets in existence?			35.3	-.40	
	d)			6.1	-.08	
3.	Remember the football diagram model used in the models film.					
	a) Describe the assumptions of the model.			*21.0	.32	
	b) In what sense was it an abstraction?			50.4	.06	
	c) Explain the function of the model			22.8	-.32	
	d)			5.8	-.40	

APPENDIX C

DESCRIPTION OF TABLE

The table in this appendix presents the examinations and analysis of items for the four tests given in the spring of 1966. For each test question the columns to the right of the question give the following information (reading from left to right): (1) the lesson and behavioral objective number from which the test item was written; (2) the code number indicating the type of cognitive process required of the student to answer the question correctly; (3) the percentage of students responding to each of the options; (4) the biserial correlation coefficient, a statistic measuring the discrimination value of an item;[1] (5) whether there was a high percentage ("high") or low percentage of correct responses to the question. The percentage of correct responses to an item was judged "high" if more than 77% of the students got the correct answer, and "low" if less than 45% of the students answered correctly.

Analysis of Cognitive Skill Levels

All test items were written from specific behavioral objectives: that is, they were tied to specific content and to a particular cognitive process. With choice testing, however, it is not always possible to have students perform cognitive tasks identical to those of the classroom. To study the type of cognitive tasks on which students were being tested, an adaptation of the Bloom taxonomy[2] was used to classify each test item according to specific cognitive skill levels. Six categories were used: 1.1, knowledge of specifics; 1.2, knowledge of ways and means of dealing with specifics; 1.3, knowledge of universals and abstractions in a field; 2.1, translation; 2.2, interpretation; 3.0, application. The higher categories of analysis, synthesis and evaluation were not attempted; though the course requires students to analyze economic institutions, 'analysis' items are difficult to write in choice form.

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[1] The figure is arrived at by comparing the scoring pattern of students in the top 27% of total test scores with the scoring pattern of students in the bottom 27%. It indicates the extent to which success with a particular item correlates with success on the total test. Thus, if 50% of the high group answers an item correctly, and 25% of the low group, the biserial correlation coefficient (written as: r_{bis}) is .27. It means the item discriminates moderately between the two groups. If only 25% of the top students get a question correct while 50% of the bottom students figure it out, the r_{bis} is -.27, an indication that something is probably wrong with the question. An r_{bis} of .40 is considered an indication that the question discriminates reasonably well.

[2] Bloom, Benjamin S. (ed.), _Taxonomy of Educational Objectives, Handbook I: Cognitive Domain_. New York: McKay, 1956.

Classification of Cognitive Skill Levels. Classification schemes are better illustrated than described. Classifying was difficult; a major problem was classifying a question as a knowledge (1._) item or a skill item (2._ or 3.0). There was not only the evaluator's particular interpretation but the factor of familiarity; what seems to be a question testing comprehension or application is really a simple matter of recall if students have performed the task before.

Here are brief descriptions of the categories and some examples from the 1966 spring tests of items put in them.

1.1, Knowledge of specifics. This category included definitions, simple distinctions and elementary factual knowledge. (See test 101, items # 1, 34 & 47).
Examples:
1. Alternative cost is: a,b,c,d.[3]
2. Which of the following types of financial institutions lend money to families by issuing credit cards: a,b,c,d.
3. Economists distinguish between needs and wants. This distinction was made in lesson one by categorizing wants as: a, b, c, d.

1.2, Knowledge of ways and means of dealing with specifics. This category was used for classifications, criteria, conventional procedures, distinctions, and sequences. (See test 101, items 6 & 8. Examples:
1. In the diagram shown of the want-satisfaction chain, which of the following goes in square four of the sequence: a,b,c,d.
2. As defined in this course, which of the following is both inputs and outputs: a,b,c,d.

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[3] The entire question is omitted because it is possible to see the sort of cognitive skill involved from the stem alone. Alternatives are included in the charts below.

1.3, Knowledge of the universals and abstractions in a field. Knowledge questions relating to major concepts and generalizations of the course were put in this category. (See test 201, #4 & test 301, #15.)

Examples:

1. All the economic activities are considered economizing because they all: a,b,c,d.
2. The five basic economic activities have in common all but one of the following: a,b,c,d.

Skill items involved either comprehension or application; generally some aspect of the question is unfamiliar to the student.

2.1, Translation. Not many items were designated as 2.1 because few involved translation of any kind; however, verbal expression of a message given in diagram was included in this category as well as less complex problems of comprehension. (See test 201, items 42 & 43 and test 401, #13.)

Examples:

1. Answer the next five questions using the circular flow diagram below.
   The upper circle represents: a,b,c,d.
   The inside arrow represents: a,b,c,d.
2. Below are three examples of specialization; indicate what type of specialization it is.
   A firm of fruit growers substitutes plastic packages for wooden ones: a,b,c,d.

2.2, Interpretation. Many items were classified 2.2 because: (1) the student was required to make some sort of judgment, or (2) he had to recall information and use it to comprehend a problem. Included, then, were items that required the student to: judge which instance meets criteria; decide if an example is an instance of an economic concept; determine whether a situation manifests an economic quality; identify the broadest definition of a concept; show comprehension of a concept by discriminating from an example, aspects of the concept. (See test 101, items 12, 15, 23. 36. & 49.)

Examples:

1. For the following three questions indicate whether, with the information given, the thing is a scarce resource.
   Sea water for a resident of Las Vegas: a) yes, b) no, c) can't tell.
2. For each of the following questions, decide whether the example shows a way in which the scarcity problem might be solved.
   A prospector discovers large deposits of titanium ore: a,b,c.

A great many questions were placed into this classification because they did not seem to be questions that belonged lower in the taxonomy, nor did they seem to belong higher in it. They seemed to be questions that required students to comprehend something: they were not, however, translation or extrapolation (2.3), so it was decided to make 2.2 the general category. That better than 40% of all questions asked are in this category perhaps reflects the attempt to write questions that involved more than simple recognition or discrimination.

3.0, Application. This type of question involved problem solving with no formulae provided. (See test 101, item 25.)
Examples:
Alternative Costs and Comparative Advantage

Secretary	Output/minutes (words)	
	Typing	Shorthand
A	60	80
B	50	100

1. What is the relative efficiency of secretary A as compared to B in typing: a) 1.2 b) .83 c) .6 d) none of these.
2. What is the alternative cost of using A as a typist: a) 80 words shorthand b) 100 words shorthand c) 60 words typing d) none of these.

APPENDIX D

SAMPLE LESSON MATERIALS
UNIT I, LESSON 5

THE ECONOMY IS A SYSTEM

The following materials are selected from Lesson 5. See the lesson description included in Appendix B for a complete list of Lesson 5 materials.

CHAPTER 5

THE ECONOMY IS A SYSTEM

("No man is an island, entire of itself." John Donne, 1573-1631)

I. Introduction

Before we go much further into the study of the U.S. economy, or any economy for that matter, it is important to get a picture of what it is we are studying. We keep referring to "the economy" as if it is an entity, a thing. But in the last chapter an economy was defined as the total group of economic institutions (organizations) which make the allocation choices and carry out the economic activities of a society. The United States is made up of millions of these economic organizations--millions of families, thousands of businesses, hundreds of labor unions, thousands of different government agencies which engage in economic activity. Is it possible to see or comprehend how all of these organizations are related and organized into the U.S.?

In this chapter we will do just this--we will look at the economy as a system. A SYSTEM is a group of parts which, taken as a whole, perform a function. A car is a system of mechanical parts which, when put together in a particular way, turn into a gasoline powered vehicle which transports people or things over roads or some sort of cleared off path. A car is not just a collection of parts; it is the collection put together in a particular way to perform a particular function.

Seeing the economy as a system is harder because it is not possible to see the whole economy; nevertheless, the U.S. economy is a system of economic organizations. The economy is not just a collection of families and businesses and government agencies. These organizations are related to each other in such a way as to perform the major economic activities. In this chapter we will look at the economy as a whole thing to see how the various economic institutions, all taken together, carry out the work of the want-satisfaction chain.

II. In a System, Everything Depends on Everything Else

No one can study economics without becoming aware that each of us is a part of a large system in which the decisions we make are shaped by earlier events and then go on, in their turn, to effect other events. This great system which we call society forces us to take our pick from a limited set of choices--almost as though life were some great miltiple-choice examination--and our choices, once made, affect others through chains of events over which we have no control.

You might argue that you have control over the choice if the question you must decide is, "Shall I go to the movies Saturday night?" But many forces have acted to present you with even this simple choice and to shape your answer. You live in a country where there are movies. (If you were a Ubangi, you might never have seen a movie.) A movie is being shown (someone decided to book the movie) in a theater (someone decided to build and operate the theater, using money obtained as a result of some other series of events), and someone has to have the price of admission (which did not come out of thin air). Presumably, you expect to stay awake (you probably will not take a twenty-mile hike during the day), and you will be available (not working, or stuck on some location too distant to reach the theater) and so on.

No single decision or action seems likely, by itself, to have much impact on our economy, and yet, each decision contributes to forces that affect many people participating in the exchange economy. If enough people patronize a certain kind of movie, movie houses do a good business, new ones may spring up, and movie makers will concentrate on making more movies of the same kind. If enough people decide not to go to the movies, movie houses close down; movie making slows down or stops; those who depended on the movie industry for a living must go elsewhere, and so it goes.

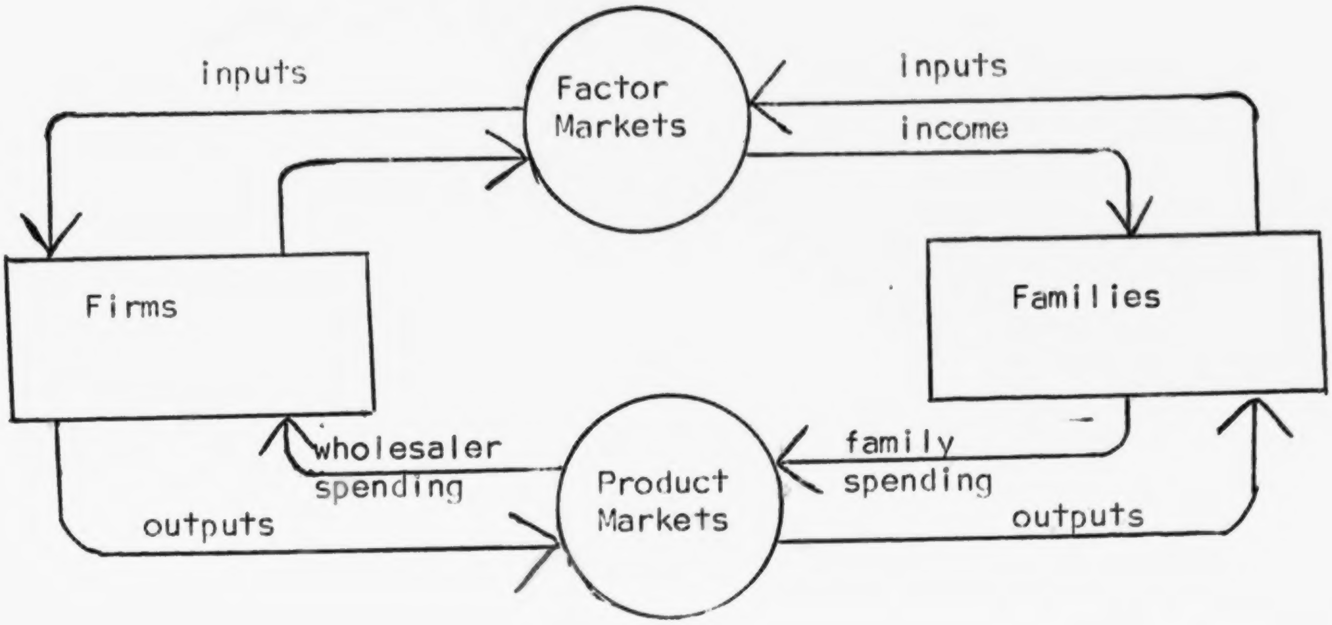
We do not have to pursue these chains of events very far to realize that what happens in a real-life economy is incredibly complicated. To try to understand the system is like trying to find your way around the tangled streets of a strange city where you cannot even speak or read the language. Then you get a map. The map removes the clutter of detail and shows you relationships. Now you can see that if you take the third turning on the left, and the first on the right, you will reach your destination. The web of streets is a system, and the map is a diagram of the system. The map doesn't tell you all about the street system by any means, but it simplifies things to the point where you can make decisions. By describing only the essentials, the map enables you to picture the whole system and to make certain kinds of decisions relating to it.

III. The Circular Flow Diagram

The circular flow diagram, pictured below, is like a simplified map of our economic system. It is a summary picture of the system which, by leaving out the snarl of detail, gives a view of the big scene; we can see the basic relationships that are hidden when we pursue details. It is a model of our economy--something other than the real thing--which helps to explain the real thing.

The circular flow diagram is a simplified model of a money-exchange, industrialized economy, or economic system. The boxes and circles in the diagram represent the major economic institutions in the economy: business firms, families, factor markets and product markets. The connecting flow line arrows are intended to show the relation between the four major types of economic institutions.

The diagram defines the function of each type of institution and makes several statements about the relations between firms and families, the two major groups of producing and consuming units in the United States:


inputs
Factor
Markets
inputs
income
Firms
Families
wholesaler
spending
Product
Markets
family
spending
outputs
outputs

1. Firms purchase productive services from families, and families purchase final output from firms.
2. The exchanges are money exchanges. The upper part of the diagram shows that inputs flow from families to firms in exchange for money income. The lower part shows that output flows from firms in exchange for money.
3. Firms and families are completely interdependent. Firms depend on families for the supply of factors of production and for the purchase of their output. Families depend on firms for their income and for the goods and services which satisfy their wants.
4. The interdependence between firms and families is circular: inputs are transformed into outputs, which are used by families to generate new inputs. The money paid to input owners is used by the families to buy the output of the firms. The money circulates round and round the system between firms and families. (The circular-flow model of the economy can be likened to the circulatory system of the human body in that both systems produce a circular and continual transformation of inputs to outputs to inputs to outputs.)
5. Goods are distributed in factor and product markets. Usually families and industrial firms do not sell to each other directly. Instead, there are exchange institutions which link families and industrial producers. In PRODUCT MARKETS retail stores (who may have bought what they sell from wholesalers) sell to consumers. Product markets are made up of businesses which buy from manufacturers or wholesalers and sell to consumers. Similarly, FACTOR MARKETS are made up of economic institutions which facilitate the sale or renting of the services of factors of production. Labor unions and employment agencies, real estate agencies, leasing companies--are all economic institutions which operate in factor markets.

The circular flow diagram shows our economy as made up of four types of sub-systems--firms, product markets, families, factor markets--all bound together, dependent on each other through a continuous, never ending series of money exchanges of goods and services. The diagram is the want-satisfaction chain, its ends brought together to show a continuous, round of economic activity. However, the diagram adds a new element, money. The money supply continually changes hands, circulating through the economy in a chain of exchanges between consumers and producers to pay people for providing real goods and services.

III. Macroeconomics

Now that we have a picture of the operation of the whole economy, we can start to speculate about a very important question--the question of what determines how much output an economy produces. This is the fourth of the four basic economic questions--what, how, for whom and how much. Studying the effects of the operation of the whole economy on how much output is produced is called MACROECONOMICS. Up to this chapter we have been involved in microeconomic questions, for we were studying how the automobile manufacturers organize production, how banks and other lenders provide credit to borrowers, the way the Kiowa and Tsimshian Indian clans organize economic activity within the tribe. In macroeconomics, we study the results of all this activity for the whole economy. We try to measure and predict the total volume of output produced and income earned as a result of economic activity. Then we go one step further to try to find out how to increase this amount from year to year to promote economic growth.

IV. Measuring Macroeconomic Activity

The circular flow diagram provides an important insight into the operation of the whole economy. The diagram is even more useful when it is made into a movie. Try to picture the flow lines as moving streams. The outside stream is a stream of goods and services moving from families to firms. The inside stream is a flow of money in the opposite direction. If you could count the amount of money flowing into the families or into the firms during any period of time, say a month, you would be able to measure the dollar value of income earned or of output produced during the month. The money flowing into the firms measures the market value of consumer spending on the output produced during the period. The money flowing into the families measures the amount of income earned for producing that output.

In fact, economists do estimate economic activity this way. GROSS NATIONAL PRODUCT (GNP) is the estimate of the market value of the final output of the economy over a period of time. GROSS NATIONAL INCOME (GNI) is the estimate of the total income earned by people for helping to produce the output. In 1966 GNP and GNI were estimated at $743 billion dollars. We will study GNP and GNI more completely in Unit III. Here, it is important to note three things about GNI and GNP--all things which you should be able to understand if you have a clear understanding of the circular flow diagram.

The first point is simple and has already been made. It is that economic activity is measured in dollars and cents rather than in physical units. We measure the market value of total output because it is impossible to measure any other way. One cannot add up tons of steel, thousands of airline tickets, millions of cans of hair spray, millions of cars. Since all of these outputs are sold for money, it is possible to add up their market value, and that's what we do.

The second point may seem unimportant but it is not. It is this. GNP and GNI are measured as RATES. They measure the flow or rate of economic activity over some period of time. If GNP is $600 billion per year in 1964 this means that, on the average, the economy produced $50 billion per month (600 billion/12), or $1.6 billion per day ($600 billion/365). Actually, during any given month during the year output probably would be quite different than $50 billion; there may not be any days when GNP for the day would equal $1.6 billion. This is because economic activity does not go on at a constant rate. Less is produced on Sunday than on other days, more is produced in the fall months than in January and February. The point to remember is that when we attempt to measure economic activity, what we measure is the output or income generated by that activity over a period of time.[1]

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[1] This is probably an important place to bring up a general point about measuring economic variables. The discussion above points out that economic activity--production, exchange, consumption, saving, investment--are all measured as rates over time because the activity is a flow. Another very important kind of economic measurement involves the measurement of wealth. Wealth is not a flow, but, rather, a STOCK of assets which can be counted or valued. You own a $50,000 business or a $1,500 car, but you earn $500 per month.

It is important to distinguish between these two different kinds of measurements--stocks and flows. To repeat, A flow measures a rate of activity, i.e., a measure of something generated over time. A stock measures a quantity which exists at some point in time. Wealth is a stock, an existing asset, which can be counted and valued. An example will show the differences. A firm produces 1600 pairs of shoes per day, valued at $10.00 per pair. It employs 100 workers who are $2.00 an hour. Production is at the rate of 200 pairs of shoes per hour. Production is a flow. At the end of the day, the firm has 1600 pairs of shoes, a stock. Workers earn $2.00 an hour, a flow; at the end of the day, one worker has $16.00 in assets, a stock.

The final point is the most important to your understanding of the forces affecting the rate of economic activity of an economy. It is that GNP=GNI during any time period. The circular flow diagram should explain to you why this equality must exist. It is because gross national product and gross national income are both products of the same activity--production. GNP measures the value of the output; GNI measures the value of the input. They are both equal because the cost of producing the output is the income received by those who helped produce it.

The total income generated in any time period depends on the productive services provided by factor owners during that period. The total output produced for that period depends on inputs and on the willingness of the families to buy the output. In this simplified model, where families spend all they earn and firms spend all revenue for new inputs, it follows that income earned equals output produced during that same time.

IV. Shortcomings of the Model

Like any model, the circular flow diagram is a simplified view of the real economy. Certain assumptions make the model simpler than the real economy. These simplifying assumptions make the model an inadequate description of some aspects of our economic system. For instance, it omits several important parts: saving and investment activities, financial and governmental agencies and transactions involving them,round-about-production, wealth. Also, the diagram does not describe how production, distribution and consumption are organized, how the basic decisions of what, how and for whom are made.

It does not give answers to the big puzzles of macroeconomics: it does not explain the causes of changes in the level of general business activity (changing rates of GNP) or the growth of the total economy. Instead, the model suggests a constant circulation of money and goods, when, in reality, the rate of generation of GNP is not constant; there are cycles in business which create periods of inflation followed by periods of unemployment. This activity increases and decreases throughout the day, the week, the months and the year, according to the season of the year and to the over-all health of the economy. Despite these cycles in economic activity in the United States, GNP tends to grow over time. The model does not enable us to predict either the fluctuations (changes) or the level of economic growth.

Finally, the diagram does not describe all economies because they are not all money-exchange systems. With simple changes in labels, the diagram of the U.S. economy can represent other money systems, including those of societies dramatically different from our own. To describe the Soviet economy, for instance, the only changes needed in the labels would be to show that Russian firms are state owned and that there is no property income flowing into households. However, the diagram cannot represent an economy which does not use money or where production and consumption occur within one institution--family or tribe. This limitation of the diagram is useful because it emphasizes the structural differences between the self-sufficient economies of tribes and the interdependent, money-exchange economies.

Because it leaves so much about the U.S. economy out, the circular flow model does not help us predict much about how much output and income actually will be produced in a given year. Its primary value is to give a picture of the economy as an exchange system between producers and consumers. In addition, it shows that the same activity which generates output (measured by GNP) generates income (GNI). It shows that economic activity is measured by rates. Finally, it suggests that an economy will operate at a constant rate of output and income per year as long as consumers spend as fast as they earn.

LESSON 5

PROGRAM ON "SYSTEMS"

FRAME 1

The word "systems" is used a lot these days. We use it, for example, in connection with missiles and other aircraft, highways, and computers. It is a word that is also used in economics. This program begins by defining the word. When you have completed the program you will be able to do the following:

- List the three conditions that define what a system is.
- Identify different levels of systems and sub-systems in economics.
- Distinguish between macroeconomics and microeconomics.

FRAME 2

> Definition:
> A system is an orderly arrangement of parts into a whole to perform some specific function.

A radio set is a system since it consists of:
(1) parts, arranged. . .
(2) into a whole. . .
(3) for a specific function

Is an automobile a system? (check one)
_____(a) Yes
_____(b) No

Yes

FRAME 3

The automobile meets the three conditions:
(1) an orderly arrangement of parts. . .
(engine, chassis, body, etc.)
(2) into a whole. . .
(the automobile)
(3) to perform a specific function. . .
(transportation of people and things over roads)

Is the Los Angeles freeway system a system as we have defined it?

_____(a) Yes
_____(b) No

Yes

FRAME 4

The three conditions met by the freeway system are:

(1) an orderly arrangement of parts. . .
(the individual, interconnecting freeways)

(2) into a whole. . .
(the freeways taken together)

(3) . . . .
(more efficient traffic flow)

YOU write in the third condition.

(3) to perform a specific function.
(Note to those who have had experiences that make them wonder about the efficiency of the Los Angeles freeway system: Everything is relative! We said more efficient. If the freeways are bad, think what it would be like if you had to fight your way across town using only the ordinary streets. The freeway system has a specific function: to move so many thousands of vehicles per hour into and out of the various areas of the city. The fact that the system cannot handle the demands made upon it during the rush hours or that a single rear-end collision can foul up the whole sections of freeway doesn't change the function of the system.)

FRAME 5

An automobile is a system; its function, transportation.

Suppose an auto dealer has a spares department that contains all the parts needed to build a car. . . Do the contents of this spares department represent a transportation system?

_____(a) Yes
_____(b) No

No

FRAME 6

The definition of system contains three conditions which must be met. One condition is:

to perform a specific function.

The spare parts department contains all the elements needed for a transportation system, but they are not organized into a whole to perform the specific function we have named--transportation.

But does the spares department represent a system of another kind, one with a different function? Suppose we say that the function of the department is to provide accessories and parts needed to keep customers' automobiles running.

Is the spares department a system?
_____(a) Yes
_____(b) No

> Yes.
> The department is an "orderly arrangement of parts"--not simply the inventory of auto parts. The auto parts are arranged in some order, but also there are parts of the department such as management, bookkeeping, shipping and receiving, shelves, a building, and and so on. All the elements forming a whole to perform a specific function--easy availability of auto parts.

FRAME 7

An advertising agency hires 200 interviewers to conduct an opinion poll among housewives about the new miracle detergent, "Boom." After collecting together the replies of 6,000 housewives to a prepared set of questions, the agency reports to the manufacturer, "Four out of five housewives surveyed prefer "Boom" over all other leading detergents."

(a) Put a check against the conditions that are met by this opinion poll:
_____an orderly arrangement of parts
_____into a whole
_____to perform a specific function

(b) The opinion poll (is/is not) a system.
circle one

(a) _✓_ an orderly arrangement of parts
6,000 housewives were all asked the same questions; their answers were recorded by the interviewers.

_✓_ into a whole
The answers were combined into a single finding (four out of five prefer "Boom").

_✓_ to perform a specific function
The report to the manufacturers on reactions to their new product.

(b) This IS a system. It meets all of the conditions.

FRAME 8

So far, we have identified as systems:

(a) a radio set
(b) an automobile
(c) a freeway network
(d) an auto dealer's spares department
(e) an opinion poll

The first four are systems made up of collections of parts that are physical objects.

True of false? The collection of parts that makes up the opinion poll system consists of activities rather than physical objects.

_____(a) True _____(b) False

(a) True.
There are some physical objects--the people, the questionnaire form, and so on. But they all contribute to activities.

FRAME 9

True or false? The collection of parts in a system can be either or both physical objects or activities.
____(a) True
____(b) False

True

FRAME 10

This course is a system.

Which of the following are included among its "collection of parts?"
____(a) physical objects
____(b) activities

Both (a) and (b)

FRAME 11

A teacher's grading procedure fulfills the three conditions necessary for a system. Write in the three conditions:

1. ________________ (Many test scores are recorded.)
2. ________________ (The individual scores are averaged to determine the final grade.)
3. ________________ (To report to the student and his parents on his progress in school.)

1. Orderly arrangement of parts.
2. Into a whole.
3. To perform a specific function.

FRAME 12

The activities and physical objects which can be included in a system may also be systems themselves. These systems within a system are called sub-systems.

An automobile is a system with the function of transportation. . .

Name at least two sub-systems of the autobobile:

....

....

The choice is yours. The sub-systems include: the fuel system, ignition system,the steering system, braking system, lighting system, and so on.

FRAME 13

Some sub-systems can be further divided into what might be called sub-sub-systems.

For example, the lighting system is really a sub-system of a car and it has the major function of illumination. Within this lighting sub-system is a sub-sub-system for signaling.

Your school is a sub-system within what system:
(a)..
Name at least two sub-sub-systems within the school sub-system.
(b)..

(a) Several possible answers exist:
- The local school district.
- The state school system.
- The U.S. education system, and so on.

(b) Your answer might include:
- This course or some other course.
- Disciplinary system (such as the group of math courses you take in high school).
- Janitorial or cafeteria service.
- The bell or buzzer system that signals classrooms, and so on.

FRAME 14

All of these systems, sub-systems, and sub-sub-systems have functions that are:

_____(a) the same
_____(b) different

(b) different

FRAME 15

Each part in a system has some relationship to at least one other part. They work together in helping the system to perform its function.

What happens if one part of the system fails to do its job?

_____(a) It makes no difference. Other parts of the system keep on working.
_____(b) The system fails, either completely or partially, until the part is restored.

(b) Each part of the system is related to others. When a part fails, the system can no longer operate as it is meant to operate.

If, for example, the fuel sub-system fails on a car, the entire transportation system (the auto, that is) also fails. If, on the other hand, one of the shock absorbers (a sub-sub-system) fails, the suspension sub-system becomes unsatisfactory, and you get a bumpy ride, but the car still operates as a transportation system.

FRAME 16

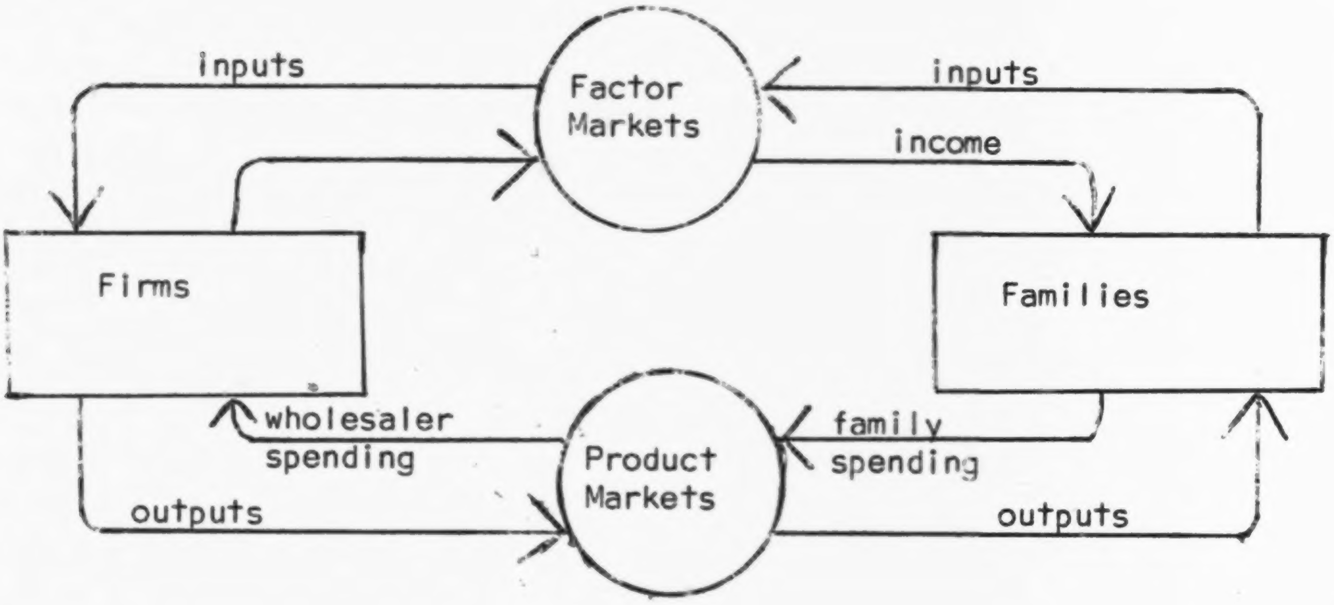
Summary up to this point

- A system is (a) an orderly arrangement of parts
  (b) into a whole
  (c) to perform a specific function.
- Within a system there often exist sub-systems and sub-sub-systems, each having a different function that contributes to the operation of the whole.

- Each part of a system is related to at least one other part.
- If one part of a system fails, the whole system is affected in some degree.

FRAME 17

Let's turn our attention to the circular flow diagram of the U.S. economy:


inputs
Factor Markets
inputs
income
Firms
Families
wholesaler spending
family spending
Product Markets
outputs
outputs

Which of these conditions does the diagram fit?
_____(a) A collection of parts
_____(b) Organized into a whole
_____(c) For a specific function

(a), (b), (c)

FRAME 18

Therefore the circular flow diagram describes a ....

system

FRAME 19

Do any of the individual parts of the circular flow diagram meet the conditions of a system: If so, list all of those that do:

____

____

____

____

Families
Firms
Factor markets
Product markets

FRAME 20

All four of the major parts of the circular flow diagram are "systems within the system." Since each is a system, each has a function.

See if you can match each system on the left with its proper function. The first one is done for you:

Families __3__ 1. Convert factors into finished products.
Firms _____ 2. Match the needs of consumers with the available products.
Factor markets _____ 3. Supply factors of production; consume products.
Product markets _____ 4. Match the needs of producers with the available factors.

_____Firms:	Convert factors into finished products.
_____Factor markets:	Match the needs of producers with the available factors.
_____Product markets:	Match the needs of consumers with the available products.

FRAME 21

The circular flow diagram depicts three basic functions of the U.S. economic system.

(a) What functions are shown?

....

....

....

(b) The over-all function of the economic system is to satisfy:

....

(a) production, consumption, exchange

(b) The function of the economic system is the familiar satisfaction of wants.

FRAME 22

Let's examine what happens in the circular flow description of our economic system if there is a change in one of the sub-systems. Suppose the rate of spending by families shows down. Will it affect the product market?

_____(a) Yes

_____(b) No

Yes

FRAME 23

If family spending decreases, the rate of sales in the product market will:

_____(a) rise

_____(b) fall

_____(c) stay the same

(b) fall

When families spend less, sales of products decrease.

FRAME 24

What effect, if any, will falling sales in the product market have upon firms. Production will:

_____(a) be increased
_____(b) be decreased
_____(c) stay the same

(b) be decreased
If the product market needs fewer of its products, a firm should decrease production.

FRAME 25

When a firm decreases its production, it needs fewer services from the factors of production. Thus, the chain reaction reaches to the factor market and then back to the family (the owner of the factors of production).

So we can say that because families reduced consumer spending, demand for the factors of production:

_____(a) increased
_____(b) decreased

(b) decreased

FRAME 26

When families reduce consumer spending, demand for the factors of production is reduced. Or, to make that statement in a more general way, because there was a change in one of the sub-systems, there was a change throughout the system.

As you can appreciate, the circular flow diagram is a greatly simplified model of the money system in our economy--real life is always much more complicated in a society like ours. But it does allow us to make this important point:

> Whenever a change occurs in the total economic system, we usually have to examine one of the sub-systems to find the cause.

Economics is a complicated field that reaches into almost every part of our lives. It has many experts studying its specialized aspects. As a first step toward simplifying the analysis of economics, we divide the topic into two broad areas: macro-economics and micro-economics.

MICRO is a prefix meaning "little."
MACRO means just the opposite, "big."

(a) When we study the over-all economic system, we are studying..............................economics.
(b) When we study the various sub-systems of economics, we are studying........................economics.

(a) macro
(b) micro

FRAME 27

(a) Since the study of trade relations between different countries involves an analysis of the "big picture" we call this study ....economics.
(b) A study of product markets in the U.S.,on the other hand, is a study of a sub-system; therefore, we call this study..

(a) macro
(b) micro-economics

FRAME 28

The circular flow diagram depicts the money flow throughout a whole nation's economy.

(a) Therefore the diagram is a part of the study of ....economics.
(b) The study of the effects of Russia's foreign policy on world trade would be.................

(a) macro
(b) macro-economic

FRAME 29

A study of the spending habits of an individual family would be the concern of

____________________-economics.

micro

FRAME 30

Summary

- The circular flow diagram depicts a system.
- Within the system are four major sub-systems.

  Families
  Firms
  Factor markets
  Product markets

- Within each sub-system, further divisions can be made to form sub-sub-systems.
- The circular flow diagram greatly simplifies what actually happens in the U.S. economy, but it does indicate how the sub-systems fit into the larger system.
- If something happens to change conditions in one of the sub-systems, the flow throughout the whole system is affected.
- The study of conditions in the sub-system is a part of micro-economics ("small-picture" economics).

UNIT I
LESSON NO. 5

PROGRAM
CRITERION TEST

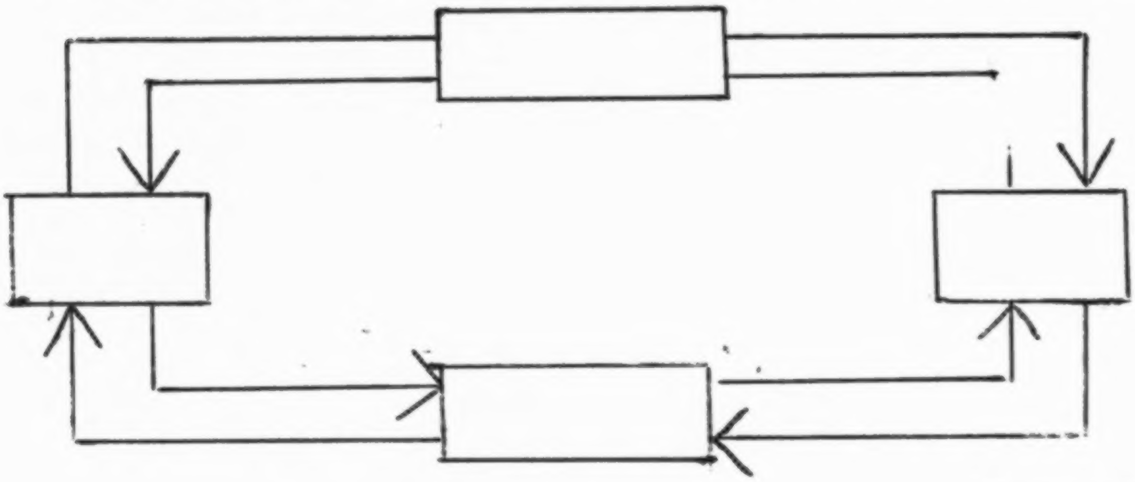
1. A system always satisfies three conditions. What are they?

____

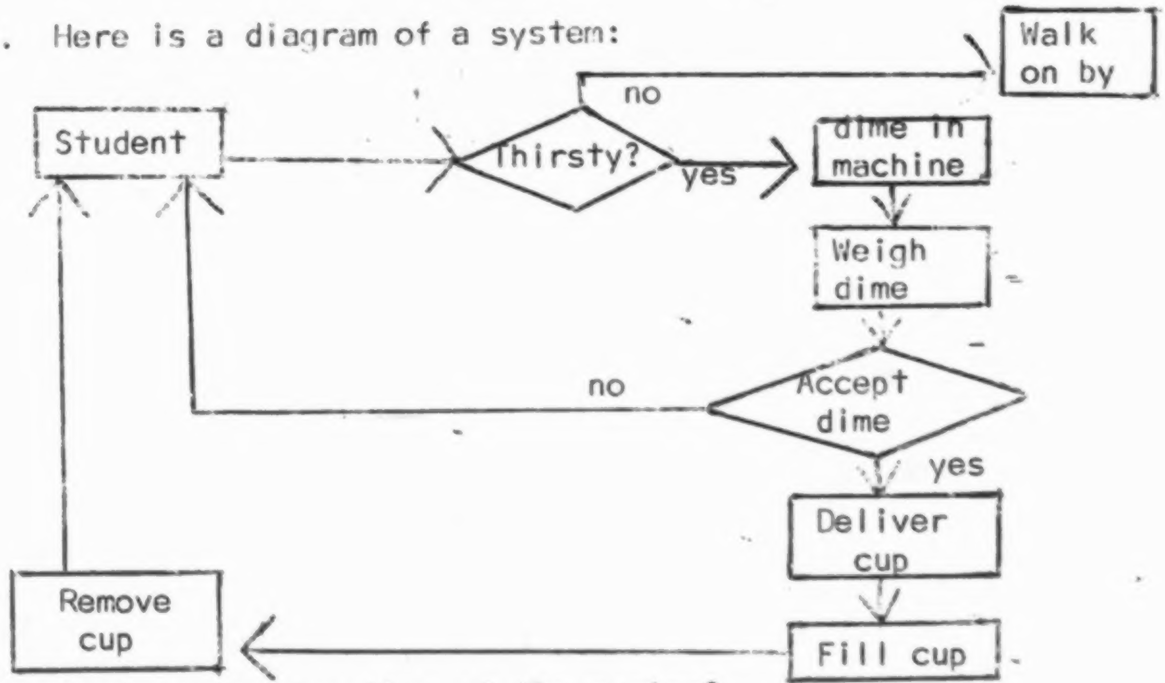
____

____

2. In this diagram of the circular flow system, label four sub-systems.



3. Here is a diagram of a system:


Walk on by
no
Student
Thirsty?
yes
dime in machine
Weigh dime
no
Accept dime
yes
Deliver cup
Remove cup
Fill cup

(a) What is the function of the system?

(b) Name at least two-sub-systems.

(c) What are the functions of the sub-systems?

Criterion Test (continued)

4. Complete the blanks at the right to show whether the description is of a macro- or micro-activity.

   (a) System showing the overall "big picture" operation. ____________________-system

   (b) Landing gear of an aircraft. ____________________-system

   (c) Circular flow diagram. ____________________-economics

   (d) Wage levels in the petroleum industry. ____________________-economics

   (e) The organization of General Motors. ____________________- economics

   (f) Study of the factor markets in the U.S. ____________________-economics

5. True or False?

   (a) All parts of a sub-system are also parts of the total system. ____________________

   (b) A sub-system meets all of the conditions of the definition of a system. ____________________

   (c) A sub-system performs the same function as the system to which it belongs. ____________________

   (d) A sub-system is simply a system within a system. ____________________

ANSWERS TO CRITERION TEST

1. A collection of parts
   organized into a whole
   for a specific function

2. Reading from extreme left, clockwise: firms, factor markets, families, product markets

3. a) to relieve thirst by giving a filled cup for a dime

   b) 1-thirst testing system
      2-dime testing system

   c) 1-to determine whether or not a person is thirsty
      2-to accept or reject coin put in the machine

4. a) macro
   b) micro
   c) macro
   d) micro
   e) micro
   f) micro

5. (a) true, (b) true, (c) false, (d) true